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Alex. Heron

SECRETARY 1871 TO 1891.

FORTIETH ANNUAL REPORT

OF THE

67007

INDIANA

State Board of Agriculture.

COMPLIMENTS

INDIANA STATE BOARD OF AGRICULTURE.

LEON T. BAGLEY,
SECRETARY.

EXCHANGE.

TO THE GOVERNOR.

INDIANAPOLIS:

WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING.
1891.



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SECRETARY 1871 TO 1891.

FORTIETH ANNUAL REPORT

OF THE

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INDIANA

State Board of Agriculture.

VOLUME XXXII--1890-1891.

Including the Proceedings of the Annual Meeting, 1891 ; State Meetings
of Cattle Breeders, Horse Breeders, Swine Breeders, Wool
Growers, Bee-Keepers, Cane Growers, Fish and
Game Association, and Dairymen.

TO THE GOVERNOR.

INDIANAPOLIS :

WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING.

1891.

INDIANAPOLIS, May 8, 1891.

HON. ALVIN P. HOVEY,
Governor of Indiana :

SIR—In compliance with the act of the General Assembly, approved February 17, 1852, we have the honor to submit to you herewith the Annual Report of the Indiana State Board of Agriculture for the fiscal year ending March 31, 1891, together with such matter as is deemed interesting and useful.

Very respectfully,

W. A. BANKS,
President.

LEON T. BAGLEY,
Secretary.

THE STATE OF INDIANA,
EXECUTIVE DEPARTMENT,
INDIANAPOLIS, May 8, 1891. }

Received by the Governor, examined and referred to the Auditor of State for verification of the financial statements.

OFFICE OF AUDITOR OF STATE,
INDIANAPOLIS, May 18, 1891. }

The financial part of the within report has been examined and found correct.

J. O. HENDERSON,
Auditor of State.

Returned by the Auditor of State, with the above certificate, and transmitted to the Secretary of State for publication, upon the order of the Board of Commissioners of Public Printing and Binding.

WILLIAM B. ROBERTS,
Private Secretary.

Filed in the office of the Secretary of State of the State of Indiana, this 18th day of May, 1891.

CLAUDE MATTHEWS,
Secretary of State.

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Members of the Indiana State Board of Agriculture.

1890.

- 1st District—ROBERT MITCHELL, Princeton, Gibson County.
2d District—W. W. BERRY, Vincennes, Knox County.
3d District—J. Q. A. SIEG, Corydon, Harrison County.
4th District—W. B. SEWARD, Bloomington, Monroe County.
5th District—V. K. OFFICER, Volga, Jefferson County.
6th District—DICK JONES, Columbus, Bartholomew County.
7th District—E. H. PEED, New Castle, Henry County.
8th District—S. W. DUNGAN, Franklin, Johnson County.
9th District—THOMAS NELSON, Bloomingdale, Parke County.
10th District—J. N. DAVIDSON, Whitesville, Montgomery County.
11th District—LLOYD S. JONES, Warren, Huntington County.
12th District—JOHN M. BOGGS, Lafayette, Tippecanoe County.
13th District—B. F. CLEMENS, North Manchester, Wabash County.
14th District—J. A. McCLUNG, Rochester, Fulton County.
15th District—W. A. BANKS, Laporte, Laporte County.
16th District—R. M. LOCKHART, Waterloo, Dekalb County.

OFFICERS FOR 1890.

HON. W. A. BANKS, *President.*

THOS. NELSON,
Vice-President.

CHAS. E. MERRIFIELD,
General Superintendent.

ALEX. HERON,
Secretary.

SYLVESTER JOHNSON,
Treasurer.

Executive Committee.

MESSERS. DAVIDSON, BOGGS, DUNGAN AND PEED.

A Table Showing the Officers, Place and Receipts of Each Fair Held by the State Board of Agriculture.

Y E A R	SECRETARY.	TREASURER.	GENERAL SUPERINTENDENT.	PLACE OF FAIR.	PREMIUMS PAID.	RECEIPTS OF FAIR.
1852	Gov. Joseph A. Wright.	Royal Mayhew	W. T. Dennis	Indianapolis	...	94,651 55
1853	Gov. Joseph A. Wright.	Royal Mayhew	J. J. Blugham	Lafayette	...	6,751 55
1854	Gov. Joseph A. Wright.	Royal Mayhew	W. T. Dennis	Madison	...	7,430 77
1855	Gen. Joseph Orr.	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	\$3,753 00	10,825 75
1856	Dr. A. C. Stephenson	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,235 00	14,373 34
1857	Dr. A. C. Stephenson	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,127 00	14,058 75
1858	Dr. A. C. Stephenson	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	...	11,500 00
1859	Geo. D. Wagner.	rp.	James L. Bradley	New Albany	6,163 00	8,598 50
1860	Geo. D. Wagner.	rp.	James L. Bradley	Indianapolis	3,527 90	11,912 00
1861	D. P. Holloway	rp.	...	No fair	...	...
1862	...	...	J. A. Grosvenor	Indianapolis	3,994 00	4,127 55
1863	...	...	J. A. Grosvenor	Indianapolis	...	9,559 36
1864	...	...	W. H. Loomis	Indianapolis	4,121 00	10,785 50
1865	...	...	W. H. Loomis	Indianapolis	4,078 00	11,597 55
1866	...	...	J. A. Grosvenor	Fort Wayne	...	17,179 36
1867	...	...	J. A. Grosvenor	Indianapolis	6,931 00	17,148 05
1868	...	...	J. B. Sullivan	Terre Haute	7,057 00	16,799 00
1869	...	...	J. B. Sullivan	Indianapolis	7,517 00	22,345 65
1870	...	...	J. B. Sullivan	...	7,914 00	19,155 23
1871	...	...	J. B. Benson	...	8,564 00	20,549 90
1872	...	...	Jacob Muts	...	9,619 20	23,484 35
1873	...	...	H. W. Caldwell	...	8,864 75	52,309 10
1874	...	...	H. W. Caldwell	...	10,754 00	45,330 48
1875	...	...	E. J. Howland	...	12,088 20	43,214 99
1876	...	...	J. L. Hanna	Indianapolis	6,357 35	14,511 00
1877	...	...	J. W. Furnas	Indianapolis	5,057 00	15,991 33
1878	...	...	R. M. Lockhart	Indianapolis	5,472 00	22,919 50
1879	...	...	R. M. Lockhart	Indianapolis	5,553 00	18,309 05
1880	...	...	Fielding Beeler	Indianapolis	6,875 50	17,874 00
1881	...	...	Fielding Beeler	Indianapolis	8,095 00	25,681 10
1882	...	...	Fielding Beeler	Indianapolis	9,581 13	26,858 43
1883	...	...	Fielding Beeler	Indianapolis	10,414 30	24,479 40
1884	...	...	Fielding Beeler	Indianapolis	9,000 50	26,555 11
1885	...	...	Fielding Beeler	Indianapolis	9,419 00	26,522 84
1886	...	...	H. B. Stout	Indianapolis	9,728 50	28,370 63
1887	...	...	Chas. B. Merrifield	Indianapolis	9,917 50	22,120 90
1888	...	...	R. M. Lockhart	Indianapolis	10,200 00	23,130 09
1889	...	...	C. E. Merrifield	Indianapolis	13,040 00	22,740 41
1890	...	...	C. E. Merrifield	Indianapolis	...	...
1891	...	...	C. E. Merrifield	Indianapolis	...	...

A. C. Jameson filled the office of Treasurer for 1873 to the 27th of August, when he resigned, and Carlos Dickson was appointed to fill the unexpired term. H. C. Meredith died July 5, and L. E. Custer, Vice President, came in as President for the unexpired term.

State Industrial Associations.

OFFICERS FOR THE YEAR 1891.

Indiana State Board of Agriculture.—President, Hon. W. A. Banks, Laporte, Laporte County; Secretary, Leon. T. Bagley, Huntington. Organized May, 1851.

Indiana Horticultural Society.—President, Hon. Joseph Ratliff, Richmond, Wayne County; Secretary, W. H. Ragan, Greencastle. Organized 1842.

State Association of Shorthorn Breeders.—President, James M. Sankey, Terre Haute; Secretary, Will S. Robbins, Horace, Decatur County. Organized May, 1872.

Indiana Horse Breeders' Association.—President, Dr. Chas. E. Wright, Indianapolis; Secretary, Horace Woods, Indianapolis, Marion County. Organized January, 1885.

Indiana Jersey Cattle Breeders' Association.—President, S. H. Godman, Muncie; Secretary, Mrs. Kate Busick, Wabash. Organized January, 1883.

Indiana Swine Breeders' Association.—President, I. N. Barker, Thorntown; Secretary, Calvin Sturtevant, Noblesville. Organized January, 1877.

Indiana Wool Growers' Association.—President, C. A. Howland, Indianapolis; Secretary, J. W. Robe, Greencastle, Putnam County. Organized October, 1878.

Indiana Poultry Breeders' Association.—President, B. T. Pace, Salem, Ind.; Secretary, Frank R. Hale, Shelbyville. Reorganized January, 1887.

Indiana Bee-Keepers' Association.—President, Dr. E. H. Collins, Mattsville, Hamilton County; Secretary, George C. Thompson, Southport, Marion County. Organized October, 1879.

Indiana Cane Growers' Association.—President, W. F. Leitzman, Clayton; Secretary, Elwood Barnard, Elwood. Organized December, 1882.

Indiana Tile Makers' Association.—President, George S. Pollock, Sullivan, Sullivan County; Secretary, J. A. Dailey, Riley, Vigo County. Organized November, 1878.

Indiana State Florist Association.—President, M. A. Hunt, Terre Haute; Secretary, Wm. G. Bertermann, Indianapolis. Organized February, 1887.

Indiana Fish and Game Association.—President, Col. W. T. Dennis, Richmond, Wayne County; Secretary, Jesse H. Blair, Indianapolis, Ind. Organized December, 1889.

Indiana Dairyman's Association.—President, Prof. Plumb, of Purdue, Lafayette, Ind.; Secretary, Mrs. L. D. Worley, Ellettsville, Ind. Organized

METEROROLIGICAL TABLES.

TABLE I.

Showing Monthly Mean Barometer, Thermometer, Relative Humidity; Maximum and Minimum Temperature; Prevailing Direction of Wind; Number of Cloudless, Partly Cloudy and Cloudy Days; Average Amount of Cloudiness; Number of Days on which 0.01 Inch or More Precipitation Fell; Total Amount of Precipitation and Number of Days on which the Temperature Fell Below the Freezing Point in Indianapolis, Ind., for Each Month of the Year 1890, as Recorded in the Signal Office at Indianapolis, Ind.

1890. MONTHS.	Mean Barometer Reduced to Sea Level—Inches.	Mean Temperature—Degrees.	Relative Humidity—Per cent.	Maximum Temperature—Degrees.	Minimum Temperature—Degrees.	Prevailing Direction of Wind.	Number of Cloudless Days.	Number of Partly Cloudy Days.	Number of Cloudy Days.	Average Cloudiness During the Month. Scale 0 to 10.	Number of Days on which 0.01 Inch or More of Precipitation Fell.	Total Amount of Precipitation—Inches.	Number of Days on which Min. Temp. Fell Below Freezing
January . . .	30.211	37.4	80	70	4	SW	5	12	14	6.8	20	10.20	15
February . .	30.080	33.8	79	69	14	SE	7	8	18	7.1	16	5.28	12
March	30.086	36.0	68	64	8	W	2	12	17	7.7	19	4.46	16
April.	30.096	53.6	62	78	29	NE	10	9	11	5.6	14	4.58	1
May	29.936	61.6	62	87	39	SE	7	13	11	5.7	19	3.61	0
June	29.990	76.8	66	97	50	SW	0	23	7	6.5	18	4.45	0
July	30.015	75.7	56	97	52	SW	11	17	3	4.6	10	0.97	0
August. . . .	30.063	71.1	66	96	46	S	11	8	12	5.5	17	5.00	0
September . .	30.105	62.9	74	87	40	NE	5	13	12	6.6	16	7.31	0
October . . .	29.974	55.0	74	84	33	NW	4	12	15	6.7	20	4.02	0
November . .	30.111	46.5	69	68	27	SW	10	9	11	5.8	10	3.35	4
December . .	30.128	33.1	70	52	12	S	5	13	13	6.3	10	1.64	24
Ann'l means	30.066	54.0	68.8	79.1	29.5	SW	..	..	..	6.2	..	..	..
Annual totals	..	..	..	..	..	..	77	144	144	..	189	54.87	72

TABLE II.

Table Showing Daily and Monthly Mean Temperature at Indianapolis, Indiana, for Each Day and Month of the Year 1890, as Recorded at the Signal Office at Indianapolis, Indiana.

(Fahrenheit.)

DATE.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	46	38	14	39	58	73	80	80	65	57	46	40
2	44	39	18	48	56	74	78	82	70	62	44	30
3	38	52	30	58	61	78	76	84	74	63	36	26
4	40	64	28	46	68	80	71	84	74	63	43	24
5	53	42	17	44	48	80	66	76	76	66	52	34
6	44	34	16	54	45	72	74	73	76	66	56	35
7	32	34	25	66	46	66	80	75	80	61	62	28
8	34	18	26	70	52	64	84	76	70	62	46	26
9	38	26	32	48	62	68	76	79	60	63	54	22
10	50	36	38	39	60	73	68	67	60	69	40	38
11	63	46	50	54	52	72	70	65	62	70	42	44
12	59	33	46	65	62	70	78	64	68	74	48	28
13	26	40	45	66	61	72	81	70	54	70	47	30
14	30	46	36	50	58	76	82	71	54	54	50	40
15	38	41	16	44	60	77	80	72	58	55	50	34
16	19	46	28	48	54	78	81	76	64	54	48	34
17	22	54	38	50	60	77	84	76	58	57	58	34
18	34	40	44	54	66	75	72	68	61	54	54	38
19	48	41	40	46	62	77	72	73	65	46	48	37
20	26	28	46	50	54	74	72	68	56	48	50	41
21	22	20	56	58	58	80	70	68	60	48	56	47
22	14	26	46	64	72	80	71	66	68	47	32	42
23	29	36	44	62	76	78	72	60	61	50	43	38
24	14	52	50	51	72	81	76	62	60	50	46	25
25	31	55	56	50	68	86	69	71	53	50	47	25
26	49	36	45	56	65	86	70	67	60	47	34	25
27	42	42	43	52	63	84	74	68	55	41	37	24
28	38	22	34	56	66	84	76	69	49	42	36	23
29	40	. . .	40	60	74	84	78	68	52	40	40	34
30	48	. . .	36	56	77	84	81	64	60	38	41	36
31	50	. . .	35	. . .	76	. . .	84	62	. . .	38	. . .	44
1890.	37.4	38.8	36.0	53.6	61.6	76.8	75.7	71.1	62.9	55.0	46.5	33.1

TABLE III.

Table Showing the Highest and Lowest Temperature in Degrees (Fahrenheit) at Indianapolis, Ind., During Each Month of the Year 1873 to 1890, Inclusive, as Recorded at the Signal Office.

MONTH	1873.		1874.		1875.		1876.		1877.		1878.		1879.		1880.		1881.		1882.		1883.		1884.		1885.		1886.		1887.		1888.		1889.		1890.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	
Jan . .	60	-13	63	1 44	-18.5	69	9 58	-11 54	-2 57	-22	66	20	47	-6	61.5	7	45	-11	56.8	-25	51.7	-11.3	55.3	-15	64.4	-11.8	59.8	-6	58	10	70	4				
Feb . .	63	1	59	17 55	-8	66	-3 63	26 61	18 58	-1	65	14	59	1	65	15	72	4	65.2	-1 6 59	-9	54.5	-4.2	66.2	10.5	59.8	-2.1	64	-1	69	14					
March .	64	2	72	20 77	9	72	11 73	9 72	23 74	15	70	21	62	18	70.5	24	68.4	12	69.5	5	63.8	3.2	75.9	15.6	69.6	15.8	69	8	8	71	22	64	8			
April .	81	32	71	27 79	19	77	29 80	28 80	35 82	21	83	27	78	20	80	24	85.3	30.4	80.5	31.4	78.3	27.8	84	24.5	85	22.4	88.3	30.9	80	23	78	29				
May . .	86	47	89	40 88	34	86	33 88	31 81	35 87	36	85	40	89	44	80.5	37	82.8	35	84	40.6	87.7	35.3	87.1	39.1	89	49	86.2	36	90	35	87	39				
June .	94	62	96	50 91	51	91	51 89	45 91	50 91	47	91	54	92	48	94	45	89	50	92 8	54.7	90.1	41.1	89	46.9	94	49.4	96.4	45.3	89	41	97	50				
July .	91	60	97	58 92	63	63	61 90	54 96	58 96	58	93.5	55	101	57	89	53	92	56.8	90	55.2	94.5	47.5	94.8	50.9	100.8	58.6	94.8	57.5	92	57	97	52				
August	95	61	95	56 87	51.5	89	48 89	57 92	53 98	53	94	51	101	55.5	90	52	91	53	89	50.2	95.1	47.7	92.2	53	99	49.2	97.5	48.9	91	51	96	46				
Sept. .	87	42	90	41 90	35	88	42 85	42 88	44 90	38	89	41	94.5	48	85	42	87	40.4	90.3	44.8	83.8	38.4	90.2	43.3	93.1	34	87.9	33.7	90	39	87	40				
Oct. . .	76	25	78	28 75	28	75	26 83	35 81	23 86	30 5 78	78	31	81	39	79	35.5	81	35	87	31.2	77.8	31.4	82.3	31.7	82.4	22.3	78.4	32	80	29	84	33				
Nov. .	59	13	71	-2 61	14	73	18 61	9 65	25 75	18.5	63	-5	63	10	72	22	65	10	66.8	12.3	69.8	23.7	71.6	16.5	73.5	3.8	76	25.7	67	12	68	27				
Dec. . .	62	12	61	12 68	-1	47	-15 67	20 48	-12 64	5	56	-13	63	14	57	-10	62	9	60.7	12.3	56.3	-2.1	57.7	-3.5	57	3	56	17.4	68	24	52	12				

TABLE IV.

Annual Means for the Years 1872 to 1890, Arranged for Comparative Purposes, as Compiled from the Records of the Signal Office at Indianapolis, Ind.

YEAR.	Mean Barometer Reduced to Sea Level—Inches.	Mean Temperature—Degrees.	Mean Relative Humidity—Per Cent.	Maximum Temperature During the Year—Degrees.	Minimum Temperature During the Year—Degrees.	Prevailing Direction of Wind.	Number of Clear Days.	Number of Fair Days.	Number of Cloudy Days.	Average Amount Cloudiness—Scale 0 to 10.	No. of Days on which 0.01 Inch or more of Precipitation fell.	Total Amount of Precipitation.	Greatest Precipitation in any 8 consecutive hours—Measurements in Inches and Hundredths.	No. of Days on which the Maximum Temperature was below Freezing.	No. of Days on which the Minimum Temperature was below Freezing.	No. of Days on which the Temperature was above 90°.
1872.	30.044	50.8	67.5	96.0	-11.0	SW.	85	142	139	5.0	122	34.07	3.71	49	120	17
1873.	30.004	52.0	69.2	96.0	-13.0	SW.	97	141	127	5.0	145	52.52	3.73	98	90	9
1874.	30.057	55.0	68.0	97.0	-2.0	NW.	97	150	118	5.0	120	43.60	2.61	17	83	27
1875.	30.005	50.5	66.1	92.0	-18.5	W.	81	138	146	5.0	155	54.58	2.86	44	107	5
1876.	29.997	53.2	68.1	93.0	-15.0	W.	83	126	157	6.0	156	57.53	2.70	30	101	9
1877.	30.008	54.0	67.2	90.0	-11.0	SW.	98	141	126	5.0	139	39.08	2.07	20	84	0
1878.	29.946	55.4	64.9	96.0	-12.0	SE.	84	159	122	6.0	148	38.62	2.03	17	68	13
1879.	30.036	53.9	64.4	96.0	-22.0	S.	94	135	136	5.0	122	42.88	2.33	27	98	12
1880.	30.030	54.4	65.4	94.0	-13.0	W.	106	145	115	5.0	123	50.99	2.00	26	19	9
1881.	30.024	54.9	67.4	101.0	-6.0	SW.	100	140	125	5.0	112	48.74	4.30	28	91	31
1882.	30.045	53.8	71.1	94.0	-10.0	NW.	107	141	117	5.3	141	53.68	3.02	19	78	4
1883.	30.059	51.8	66.2	92.0	-11.0	SW.	96	157	111	5.4	164	54.12	3.71	35	106	6
1884.	30.044	52.5	67.6	92.8	-25.0	S.	99	144	123	5.6	159	39.99	2.16	40	91	5
1885.	30.019	49.3	73.9	95.1	-11.3	SW.	92	153	120	5.5	147	39.51	2.87	42	111	15
1886.	30.039	51.0	71.3	94.8	-15.0	S.	108	150	107	5.2	138	39.88	2.11	47	127	13
1887.	30.044	52.7	66.0	100.3	-11.8	NW.	113	146	106	5.2	119	33.08	1.89	31	120	34
1888.	30.062	50.6	68.8	97.5	-6.0	SW.	113	119	134	5.1	124	41.36	2.62	36	103	17
1889.	30.062	53.1	69.3	92.0	-1.0	SW.	95	113	157	5.5	133	38.41	2.44	18	71	5
1890.	30.066	54.0	68.6	96.9	4.4	SW.	77	144	144	6.2	189	54.87	4.41	25	72	23

Verified and corrected at the office of the Chief Signal Officer of the Army, Washington.

TABLE V.

Table Showing Monthly Mean Barometer Reduced to Sea-Level (and since 1875 to Sea-Level), at Indianapolis for Each Year, from 1872 to 1890, Inclusive, as Recorded at the Signal Office.

MONTHLY MEAN BAROMETER (Inches).

MONTH.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
January	30.130	30.056	30.120	30.232	30.107	30.160	30.022	30.151	30.026	30.136	30.159	30.162	30.188	30.156	30.053	30.031	30.250	30.056	30.211
February	30.008	30.044	30.099	30.129	30.070	30.156	29.917	30.112	30.049	30.092	30.101	30.283	30.060	30.026	30.114	30.156	30.086	30.174	30.080
March	30.043	30.030	30.044	29.999	29.982	30.013	29.912	30.073	30.059	29.824	30.088	30.057	30.040	30.095	29.975	30.055	30.121	30.004	30.086
April	29.960	29.896	30.016	29.964	29.978	29.898	29.746	29.969	29.946	29.963	30.027	29.965	29.948	30.014	30.029	29.999	30.154	30.018	30.096
May	29.988	29.895	29.940	29.922	29.963	29.992	29.904	29.951	29.974	29.967	29.955	29.940	29.956	29.909	29.925	29.974	29.940	29.974	29.986
June	29.976	29.905	29.925	29.948	29.881	29.907	29.896	29.954	29.947	29.906	29.907	29.931	30.009	30.013	29.951	29.992	29.954	30.012	29.990
July	29.964	29.982	29.954	29.935	29.957	29.931	29.912	29.627	29.957	29.995	30.012	30.012	29.918	29.964	29.936	29.975	30.047	29.988	30.015
August	30.032	30.013	29.952	29.945	30.001	29.925	29.876	29.951	29.976	30.005	29.981	30.050	30.034	29.946	29.982	29.994	30.041	30.098	30.063
September . . .	29.997	30.632	30.020	30.020	29.954	29.997	30.050	30.081	30.033	30.017	30.067	30.043	30.052	30.025	30.084	30.076	30.082	30.054	30.105
October	30.095	30.062	30.093	20.999	29.972	29.983	30.028	30.108	30.062	30.130	80.034	30.090	30.153	29.973	30.198	30.086	30.014	30.133	29.974
November	30.112	30.010	30.116	30.037	29.980	30.038	30.010	30.078	30.297	31.163	30.177	30.161	30.131	30.001	30.051	30.094	30.155	30.102	30.111
December	30.218	30.125	30.165	29.936	30.109	30.097	30.082	30.080	30.124	30.170	30.152	30.136	30.156	30.106	30.169	30.095	30.142	30.134	30.128

TABLE V—Continued.

MONTHLY MEAN TEMPERATURE IN DEGREES, FAHRENHEIT.

MONTH.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
January	26.6	24.5	35.5	20.0	38.6	27.8	34.5	26.5	45.9	23.7	31.6	24.5	21.6	22.5	22.2	24.4	23.3	34.2	37.4
February	29.6	30.3	35.6	21.2	37.0	39.2	39.0	30.1	38.7	29.8	42.2	32.0	34.7	20.5	28.2	34.6	30.5	27.0	38.8
March	35.0	37.9	41.6	37.4	37.5	35.5	49.9	42.5	41.6	36.8	44.8	36.1	41.1	33.0	39.4	38.2	35.7	44.4	36.0
April	55.0	51.2	45.8	49.3	52.0	53.8	58.6	52.3	55.2	47.5	53.3	50.3	50.2	51.5	54.6	52.3	52.6	53.8	53.6
May	64.3	63.9	66.6	62.3	65.7	61.9	61.6	66.2	68.4	70.2	58.5	60.9	62.1	60.5	64.3	67.3	60.5	61.6	61.6
June	73.0	76.7	76.2	70.8	71.9	71.5	69.6	71.4	73.3	72.8	71.6	71.5	73.2	68.8	69.2	73.8	72.9	67.8	76.8
July	77.7	75.3	78.3	75.6	77.7	75.8	79.1	79.5	76.9	79.4	72.6	75.1	78.7	76.3	74.3	80.6	75.2	74.2	76.7
August	75.9	74.8	75.5	70.2	75.0	73.1	75.2	72.6	75.6	79.0	73.0	70.4	72.3	70.0	72.9	73.3	71.1	71.4	71.1
September	66.7	63.8	68.6	63.1	64.4	66.3	67.0	61.7	64.2	73.5	65.5	63.2	71.6	63.9	66.6	65.8	60.9	64.5	62.9
October	53.3	49.8	55.0	50.8	51.1	58.2	54.0	62.3	52.9	60.2	58.8	54.8	58.3	50.4	55.3	50.2	48.5	50.8	55.0
November	35.3	37.0	42.1	39.9	41.1	42.6	44.9	45.4	31.2	42.8	43.3	45.0	41.5	41.9	39.3	40.5	42.4	40.9	46.5
December	23.8	37.2	35.3	41.2	22.6	46.3	26.9	35.6	24.2	40.2	30.4	34.4	29.9	32.0	25.2	30.8	34.0	46.7	33.1

TOTAL PRECIPITATION, IN INCHES AND HUNDREDTHS.

January	1.17	4.50	3.75	1.01	5.94	1.56	2.38	1.47	6.32	2.10	3.74	1.32	1.05	3.31	4.02	1.48	2.81	2.52	10.20
February	1.41	2.85	4.17	1.88	4.49	1.21	2.10	2.17	3.16	6.43	7.28	7.19	4.73	1.54	1.51	4.61	1.45	1.29	5.28
March	1.31	3.90	5.79	5.23	7.44	5.23	1.23	3.96	4.08	4.01	6.11	3.25	3.01	0.82	2.85	2.78	4.26	2.15	4.46
April	3.26	5.91	4.44	1.29	2.27	3.11	5.51	2.25	6.43	2.60	3.68	2.73	2.89	5.28	3.09	3.92	4.05	2.07	4.58
May	3.22	3.89	4.03	5.13	5.11	2.09	3.24	3.38	8.22	3.78	7.65	4.02	4.80	3.66	3.82	2.39	4.73	5.76	8.61
June	3.28	3.70	5.25	12.20	7.54	6.21	2.25	2.94	8.48	3.92	9.35	4.59	4.11	5.74	4.92	2.45	2.65	4.88	4.45
July	11.00	11.28	3.53	13.12	7.48	4.19	4.54	2.40	2.26	0.82	3.43	6.12	6.03	1.43	2.27	1.41	3.33	5.98	0.97
August	2.69	1.32	2.90	3.66	5.86	4.13	2.42	5.71	2.67	0.97	4.51	2.48	0.46	5.82	6.70	3.15	5.84	0.54	5.00
September	2.81	1.76	2.09	1.34	3.85	2.04	3.35	6.94	1.86	3.25	0.72	2.72	3.09	3.50	3.43	2.11	1.23	3.79	7.31
October	1.07	5.27	0.36	2.67	4.42	3.32	4.78	1.34	3.54	6.11	2.18	8.56	2.31	3.25	1.20	0.55	4.03	1.70	4.02
November	0.80	2.55	4.82	3.04	2.26	3.64	2.87	5.82	2.58	9.35	2.50	6.80	1.46	2.71	3.87	3.71	5.07	4.97	3.35
December	2.10	5.90	2.79	4.01	0.90	2.45	3.95	5.10	1.44	5.40	2.53	4.34	6.05	2.45	2.20	4.52	1.91	2.76	1.64

Compared and corrected at Signal Office, War Department, Washington City, April 7, 1890.

MEMBERS OF THE INDIANA STATE BOARD OF AGRICULTURE.

→1891←

- 1st District—ROBERT MITCHELL, Princeton, Gibson County.
 2d District—W. W. BERRY, Vincennes, Knox County.
 3d District—J. Q. A. SEIG, Corydon, Harrison County.
 4th District—W. B. SEWARD, Bloomington, Monroe County.
 5th District—V. K. OFFICER, Volga, Jefferson County.
 6th District—W. W. HAMILTON, Greensburg, Decatur County.
 7th District—E. H. PEED, Newcastle, Henry County.
 8th District—S. W. DUNGAN, Franklin, Johnson County.
 9th District—J. M. SANKEY, Terre Haute, Vigo County.
 10th District—J. N. DAVIDSON, Whiteville, Montgomery County.
 11th District—LLOYD S. JONES, Warren, Huntington County.
 12th District—JOHN M. BOGGS, Lafayette, Tippecanoe County.
 13th District—W. A. MAZE, Sharpsville, Tipton County.
 14th District—J. A. McCLUNG, Rochester, Fulton County.
 15th District—W. A. BANKS, La porte, Laporte County.
 16th District—R. M. LOCKHART, Waterloo, Dekalb County.

HON. W. A. BANKS, <i>President.</i>	
J. Q. A. SEIG, <i>Vice-President.</i>	LEON T. BAGLEY, <i>Secretary.</i>
SYLVESTER JOHNSON, <i>Treasurer.</i>	CHAS. E. MERRIFIELD, <i>General Superintendent.</i>

EXECUTIVE COMMITTEE,
 MESSRS. PEED, DAVIDSON, MITCHELL AND LOCKHART.

SUPERINTENDENTS OF DEPARTMENTS.

- Draft, Coach and General Purpose Horses*—V. K. OFFICER.
Light Harness and Speed—E. H. PEED.
Jacks and Mules—W. W. HAMILTON.
Cattle Department—Beef Breeds, J. M. SANKEY. Dairy Breeds, J. N. DAVIDSON.
Swine Department—W. A. MAZE.
Sheep Department—J. A. McCLUNG.
Forage, Stalls and Stall Rents—LLOYD S. JONES.
Farm and Garden Products—S. W. DUNGAN.
Poultry Department—W. W. BERRY.
Horticultural Department—R. M. LOCKHART.
Mechanical Department—J. Q. A. SEIG and W. B. SEWARD.
Woman's Department and Exposition Building—ROBERT MITCHELL.
Geology and Natural History—PROF. S. S. GORBY, State Geologist.
Gates—JNO. M. BOGGS.
Amphitheatre—W. W. HAMILTON.

CONSTITUTION

OF THE

Indiana State Board of Agriculture,

—AS—

Revised and Adopted at the January Meeting of the Board, 1883.

ARTICLE 1. The name and style of this society shall be "The Indiana State Board of Agriculture;" its objects, to promote and improve the condition of agriculture, horticulture, and the mechanic, manufacturing and household arts.

ART. 2. There shall be held in the city of Indianapolis, in such time as may be prescribed by law, an annual meeting of the State Board of Agriculture, together with Presidents, or other delegates duly authorized, from each county, or such other agricultural society as may be authorized by law to send delegates, who shall, for the time being, be *ex-officio* members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects and condition of the agricultural interests throughout the State; and at such annual meetings the several reports from county societies shall be delivered to the President of the State Board of Agriculture; and the said President and delegates shall, at this meeting, elect suitable persons, to fill all vacancies in this Board: *Provided, however,* That said election shall not affect the members of the Board present, whose terms shall not be considered to expire until the last day of the session.

ART. 3. The State Board elect shall meet immediately after the adjournment of the State Board for the purpose of organization, and for the transaction of such other business as the wants and interests of the society may require; and hold such other meetings, from time to time, for making out premium lists, preparing for State Fairs, and all other business necessary to the promotion of the objects of the society.

ART. 4. The State Board elect shall consist of sixteen members, chosen from the following districts:

- 1st District—Posey, Vanderburgh, Gibson, Warrick and Spencer counties.
- 2d District—Knox, Daviess, Martin, Pike, Dubois, Crawford and Perry counties.
- 3d District—Harrison, Washington, Orange, Floyd, Clark and Scott counties.
- 4th District—Jackson, Lawrence, Brown, Monroe, Greene, Owen and Sullivan counties.

- 5th District—Jefferson, Switzerland, Ohio, Dearborn, Franklin, Ripley and Jennings counties.
- 6th District—Bartholomew, Decatur, Rush, Fayette, Union and Wayne counties.
- 7th District—Madison, Hancock, Hamilton, Henry and Shelby counties.
- 8th District—Marion and Johnson counties.
- 9th District—Clay, Vigo, Parke, Vermillion and Fountain counties.
- 10th District—Putnam, Morgan, Hendricks, Montgomery and Boone counties.
- 11th District—Delaware, Randolph, Jay, Adams, Wells, Huntington and Blackford counties.
- 12th District—Carroll, White, Benton, Newton, Tippecanoe, Warren, Jasper and Pulaski counties.
- 13th District—Clinton, Tipton, Howard, Grant, Wabash and Whitley counties.
- 14th District—Elkhart, Kosciusko, Fulton, Cass and Miami counties.
- 15th District—St. Joseph, Marshall, Starke, Laporte, Porter and Lake counties.
- 16th District—Allen, Dekalb, Steuben, Lagrange and Noble counties.

Chosen for two years, one-half of whose terms expire every year, to-wit: Those representing the first, second, third, fourth, seventh, fourteenth, fifteenth and sixteenth, expire at the annual meeting of 1860, and those representing the fifth, sixth, eighth, ninth, tenth, eleventh, twelfth and thirteenth districts, expire at the annual meeting to be held in January, 1861. To be chosen by ballot.

ART. 5. It shall be the duty of the President to preside at all meetings, conduct the business in an orderly and parliamentary manner, and officially sign all vouchers and drafts upon the Treasurer (except for premiums), and all other instruments requiring the same, and call special meetings in cases of emergency.

ART. 6. The State Board elect shall, at the annual meeting after the adjournment of the delegate meeting, proceed to elect one of their number President, who shall hold his office for a term of one year, and until his successor is elected and qualified, and one of their number for Vice-President, whose term shall be the same as President, who shall act, and, for the time being, have all the power as President, whenever the President is absent from any regular meeting. They shall also elect some suitable person as Secretary, and some suitable person as Treasurer, and a General Superintendent, who shall hold their offices each for one year, unless removed for incompetency or neglect of duty. They shall also elect four of their number who shall, with the President, constitute an Executive Committee, who shall have power to act in cases of emergency, where loss would result by waiting till a regular meeting of the Board, but shall have no power whatever during the meeting of the Board.

ART. 7. It shall be the duty of the Treasurer to safely keep the funds belonging to the society, pay out the same on orders or drafts drawn by the Secretary, and report annually to the State Board, and as much oftener as he may be called upon by the Board, and shall give bond for the faithful performance of his duties.

ART. 8. It shall be the duty of the General Superintendent to take care of and carefully keep all property belonging to the Society, have the care and control of the Fair Grounds during the recess; have the supervision and oversight of such improvements or additions as may be directed by the State Board, and, under their direction, procure materials, contract for labor, and shall be, during the continuance of a fair, the Chief Marshal and head of the police. The members of the Board shall employ all the necessary police and gate-keepers.

ART. 9. The Secretary shall keep a true record of the proceedings. He shall conduct all correspondence on behalf of the society, except when otherwise directed by the President. He shall, by himself and assistants by him appointed, arrange the details of the entries, tickets, and enroll the names of committees and

judges of the State Fair, receive and record the various reports of the awarding committees, fill out and deliver all diplomas and certificates. It shall be the duty of the Secretary to condense the County Agricultural Reports for each year into one volume, and superintend the publishing of the same. He shall audit and file all accounts against the Board; draw orders in favor of the proper persons on the Treasurer for the amount; but orders shall not be drawn payable to order or bearer, but to the name of the party alone, or his agent. He shall make an annual report, showing amount of all orders upon the treasury, and shall perform such other duties as the best interests of the society may demand; but he is at all times subject to the direction and control of the State Board.

ART. 10. At the annual meeting of the Board the salaries of the Treasurer, Secretary and Superintendent shall be fixed for the ensuing year: *Provided*, That said Board may, in their discretion, at any meeting of said Board, make said officers an additional allowance for *extra* services.

ART. 11. That no compensation shall be allowed to delegates attending the annual meeting of the State Board; nor shall the members of the State Board elect be paid any sum of money, as compensation or otherwise, except by order of the Board elect.

ART. 12. The State Board may adjourn from time to time, or they may be called together by the Secretary, by order of the President, by a written notice to each member, enclosed by mail, and a notice of such meeting published in two or more newspapers of general circulation, in the city of Indianapolis; and all meetings so held by adjournment, or calls, shall be deemed regular and legal.

ART. 13. Any alteration or amendment to this Constitution may be made at the annual meeting of the State Board, two-thirds of all the members voting for such amendment.

ART. 14. The following standing committees shall be appointed by the President, to whom all matters of business coming up for reference under their particular heads, shall be referred, unless otherwise specially directed by the Board:

1. Finance and Claims.
2. Rules and Regulations.
3. Fair Grounds.
4. Unfinished Business.
5. Geological Survey—Executive Committee, *ex-officio*.
6. Premium List.

AMENDMENTS TO THE CONSTITUTION.

At the May meeting in 1851, certain rules, embracing ten sections, for the government of county agricultural societies, were adopted by the Board of Agriculture, as required in Section 1 of the statute laws enacted by the Legislature of Indiana, for the "Encouragement of Agriculture," approved February 17, 1852.

At the February meeting of 1868, the rules were found inexpedient, and repealed, and the following resolutions submitted by the Committee on Rules and Regulations, were adopted:

Resolved, That all county and district societies shall be organized and governed by the laws of the State of Indiana in regard to agricultural societies, and especially under the act passed by the Legislature and approved February 17, 1852.

Resolved, That all societies so organized will be entitled to send delegates to this Board (State Board of Agriculture), at its annual meetings, and will be received and acknowledged upon the presentation of their reports and credentials and compliance with the laws as legally organized societies.

RESOLUTION OFFERED UPON THE RETIREMENT OF SECRETARY HERON.

WHEREAS, At the last reorganization of the State Board of Agriculture, Alex. Heron, who has served as Secretary of the Board for the past 19 years, declined to be a candidate for election for another term ; and,

WHEREAS, In the retirement of Mr. Heron from the active work that has engrossed his time through the best period of his life, and to which he devoted his best energies and achieved his greatest success, this Board has lost the services of a true, tried and most valuable officer ; therefore,

Resolved, That in the retirement of Mr. Heron from the office he has so ably filled for such a long period of time, this Board has lost the services of a man thoroughly devoted to the work of increasing the usefulness of the State Board of Agriculture, and that we most heartily attest his integrity, worth and zeal, and wish for him in his retirement, a long, happy and prosperous life.

W. B. SEWARD,
R. M. LOCKHART,
ROBT. MITCHELL,
Committee.

STATE BOARD MEETINGS, 1890.

ORGANIZATION OF THE BOARD.

JANUARY 9, 1890.

The Board organized by electing J. Q. A. Seig temporary chairman.

The election of officers resulted as follows :

President—Hon. W. A. Banks, Laporte County.

Vice President—Thomas Nelson, Parke County.

Secretary—Alex. Heron, Marion County.

Treasurer—Sylvester Johnson, Marion County.

General Superintendent—Chas. E. Merrifield, Marion County.

Executive Committee—J. N. Davidson, J. M. Boggs, S. W. Dungan and E. H. Peed.

Mr. Mitchell offered the following, which was adopted :

WHEREAS, The organization known as the Woman's State Fair Association, that has been intrusted with the care and management of the Woman's Department of the State Fair for the past year, has been unsatisfactory to the Board and many of the exhibitors in that department; and,

WHEREAS, The Board understood that said organization was to be a State Association, and to reach out and work for the benefit of the State, thereby relieving the Board of much labor and care, but having failed to accomplish the end for which it was created; therefore, be it

Resolved, That from and after this date the services of the organization known as the Woman's State Fair Association be dispensed with, and that said department be taken back under the control of the Board, to be managed by them through a Department Superintendent.

Board adjourned.

STATE BOARD MEETINGS, 1890.

FEBRUARY MEETING.

FEBRUARY 11, 10 A. M.

The Board met with President Banks in the chair ; present : Messrs. Robert Mitchell, W. W. Berry, J. Q. A. Sieg, W. B. Seward, V. K. Officer, E. H. Peed, S. W. Dungan, Thomas Nelson, J. N. Davidson, Lloyd S. Jones, John M. Boggs, B. F. Clemans, J. A. McClung, W. A. Banks and R. M. Lockhart.

It was ordered that the per diem of the members and the salaries of officers remain the same as last year.

The President announced the following superintendents of departments : Draft Horses, V. K. Officer ; General Purpose and Light Harness, E. H. Peed ; Speed Ring, B. F. Clemans ; Cattle Department, Beef Breeds, Thos. Nelson ; Dairy Breeds, J. N. Davidson ; Hog Department, Lloyd S. Jones ; Sheep Department, S. W. Dungan ; Forage, Stalls and Stall Rents, J. Q. A. Sieg ; Poultry, Farm and Garden Products, J. A. McClung ; Horticultural Department, R. M. Lockhart ; Mechanical Department, W. B. Seward and Dick Jones ; Woman's Department and Exposition Building, Robert Mitchell ; Geology and Natural History, Prof. S. S. Gorby, State Geologist ; Gates, J. M. Boggs ; Amphitheatre, W. W. Berry.

The matter of advertising the Fair was referred to the Executive Committee.

Messrs. Sieg, Mitchell and Seward were appointed as a special committee to report on the best method of issuing tickets in the Mechanical Department.

The Board discussed the protest of B. B. Beeson, representing the Wayne, Henry and Randolph Agricultural Society, against issuing a certificate (to draw county license money) to the Wayne County Association, on the ground that the society is a Horticultural Society. The Secretary was directed to issue a certificate to the Wayne County Society.

The State Horticultural Society and State Florists' Association presented a petition asking that a new floral and horticultural hall be erected on the fair grounds. On motion of Mr. Lockhart, the Executive Committee was directed to take steps immediately looking to the building of said hall.

Jasper N. Davidson and the Secretary were selected as representatives of the Board to meet other delegates of the Central Fair Circuit at Indianapolis to agree upon special attractions for the several fairs embraced in the circuit.

The Executive Committee was instructed to redeem as many outstanding bonds as possible with the money on hand.

In beef breeds, Polled Angus, Galloways and Red Polls were ordered added to the premium list.

Board adjourned.

FEBRUARY 12.

Board met on State Fair Grounds, and selected sites for Horticultural Hall and four new stables, to contain an aggregate of sixty-four stalls.

The Woods Reaper Company was offered a new site to locate a hall for exhibition purposes.

Three classes were added to the horse department, by separating Clydes and Shires and Cleveland Bays and French Coach, and adding Percherons to the premium list.

An additional class for Oxfordshire down sheep and "Duroc Jersey" hogs was ordered incorporated in the premium list.

One hundred and thirty-five dollars additional premiums were ordered offered in the poultry department.

The committee appointed to determine the number of tickets to be issued in the mechanical department reported the following, which was adopted: Each exhibitor in the mechanical department who shall exhibit goods to the value of fifty dollars or more, a ticket good for two admissions each day for one person will be given to the exhibitor. Every exhibitor owning a building on the grounds and exhibiting therein shall be entitled to two tickets, good for two admissions for one person each day. Exhibitors in any of the departments can, on the order of the Department Superintendent, procure tickets for themselves and necessary assistants, good during the Fair for two admissions for one person each day, for one dollar each.

The premiums on speed were increased \$1,000.

FEBRUARY 13.

Board met, pursuant to adjournment. The pay of State Fair employees was made as follows: Committeemen, \$5 per day and actual railroad fare; gate keepers, \$3 per day and railroad fare; police, \$2 per day.

Superintendents of departments were authorized to employ expert judges and all other assistants in their respective departments.

On motion, all sweepstake premiums on horses, cattle and sheep were ordered stricken from the premium list, and the money added to the premiums in the several classes of young animals.

The Secretary was directed to continue the Board's membership in the American Trotting Association.

Board adjourned to September 22.

EXECUTIVE COMMITTEE MEETINGS.

The Executive Committee met on call of the President. Present, Messrs. Boggs, Davidson, Dungan and Peed.

The unfinished business pertaining to the revision of the Premium List was taken up and disposed of.

The plans and specifications for the new Horticultural Hall and the four new barns, presented by Superintendent Merri-field, were adopted.

The medals awarded by the American Clydesdale Association at the State Fair of 1889 were ordered sent to the parties entitled to them.

Ordered that the purchase notes for new fair grounds to the amount of \$4,000, and \$6,000 of the Baltimore bonds be paid off out of the State appropriation of \$10,000 due April 1.

The General Superintendent was authorized to lease ground to the Buckeye Harvesting Co. for exhibition purposes.

Fifty dollars was appropriated to rearranging the Agricultural Museum.

Adjourned.

JUNE 16.

The Executive Committee met, all members present.

Robert Kennington, contractor, was allowed \$676, a claim for street improvement, grading and graveling Fourteenth Street.

The new barns and the roof of the amphitheatre were ordered painted. The Secretary and General Superintendent were authorized to arrange for a bench show in connection with the fair.

Adjourned.

AUGUST 5.

The Executive Committee met. The State Florists' Association requested that the new Horticultural Hall be tendered to them for their exclusive use, and that they be allowed to appoint the Assistant Superintendent. Referred to Superintendent Lockhart.

Stock exhibitors were allowed to offer at public sale stock on the fair grounds Friday afternoon of the fair.

The changing of the Woman's Exhibit from the second to the first floor of the exposition, as recommended at a previous sitting of the committee, was abandoned.

One hundred and fifty dollars was appropriated towards a dog and pet stock show at the fair.

Adjourned.

EXPOSITION MEETINGS.

SEPTEMBER 22.

The Board met pursuant to adjournment at the February meeting; present: Messrs. Mitchell, Berry, Seig, Seward, Officer, Jones of Bartholomew, Peed, Dungan, Nelson, Davidson, Jones of Huntington, Boggs, Clemans, McClung and Lockhart. President Banks in the chair.

Adjourned.

Meetings were held during the week closing September 27. Nothing of importance, excepting general routine business connected with the State Fair, such as allowing bills, hearing complaints of exhibitors, etc., was transacted.

EXECUTIVE COMMITTEE MEETINGS.

OCTOBER 6, 1890.

The Executive Committee met to receive the report of the Secretary on the outcome of the Fair, and to settle with the Treasurer. The settlement showed total receipts from sale of tickets, \$14,973.85

On motion the President appointed a Legislative Committee, consisting of Messrs. Davidson, Clemans, Nelson, Jones and President Banks, to ask the Legislature to amend the law authorizing the Board, to own 200 acres of land for Fair purposes.

A number of bills, amounting in the aggregate to \$1,611.94, on account of State Fair expenses, were allowed. The Secretary and Treasurer were authorized to make a loan of \$2,000 for one year.

Adjourned.

NOVEMBER 13.

The Executive Committee met. A statement of the condition of the Board's finances showed a shortage of \$2,700 needing immediate attention. A loan to cover the amount was ordered negotiated immediately.

The programme for the annual meeting was prepared.

President Banks and Secretary Heron were appointed as delegates to attend the meeting of the Western Fair Circuit at Chicago November 18.

Adjourned.

ANNUAL MEETING, 1891.

JANUARY 6, 10 A. M.

The Thirty-ninth Annual Meeting of the Delegate Board of Agriculture met in the lecture room of the State Board, State House, with Hon. W. A. Banks in the chair. The roll-call showed Districts represented as follows :

- 1st District—ROBERT MITCHELL, Princeton, Gibson County.
- 2d District—W. W. BERRY, Vincennes, Knox County.
- 3d District—J. Q. A. SIEG, Corydon, Harrison County.
- 4th District—W. B. SEWARD, Bloomington, Monroe County.
- 5th District—V. K. OFFICER, Volga, Jefferson County.
- 6th District—DICK JONES, Columbus, Bartholomew County.
- 7th District—E. H. PEED, New Castle, Henry County.
- 8th District—S. W. DUNGAN, Franklin, Johnson County.
- 9th District—THOMAS NELSON, Bloomingdale, Parke County.
- 10th District—J. N. DAVIDSON, Whitesville, Montgomery County.
- 11th District—LLOYD. S. JONES, Warren, Huntington County.
- 12th District—JOHN M. BOGGS, Lafayette, Tippecanoe County.
- 13th District—B. F. CLEMANS, North Manchester, Wabash County.
- 14th District—J. A. McCLUNG, Rochester, Fulton County.
- 15th District—W. A. BANKS, Laporte, Laporte County.
- 16th District—R. M. LOCKHART, Waterloo, Dekalb County.

The call of County Societies showed :

DELEGATES PRESENT.

COUNTY.	DELEGATE.	POSTOFFICE.
Boone	Thos. A. Cobb	Lebanon.
Carroll	E. W. Armstrong	Camden.
Cass	G. D. Custer	Logansport.
Clark	D. P. Monroe	Saluda.
Clinton	James McDavis	Mulberry.
Dearborn	A. E. Noland	Lawrenceburg.
Decatur	Edward Keesing	Greensburg.
Dekalb	John L. Davis	Auburn.

DELEGATES PRESENT—Continued.

COUNTY.	DELEGATE.	POSTOFFICE.
Delaware	Eli Ogle	Muncie.
Fulton	J. A. McClung	Rochester.
Gibson	S. H. Hargrove	Princeton.
Grant	John L. Thompson	Arcanna.
Greene	J. W. Wolford	Linton.
Hamilton	J. P. Davis	Sheridan.
Hancock	Marion Steele	Greenfield.
Harrison	J. W. McKnister	Corydon.
Hendricks	O. W. Lowry	Jamestown.
Henry	T. C. Phelps	Greensboro.
Howard	W. J. Floyd	Middleport.
Huntington	C. E. Briant	Huntington.
Jay	E. Lyons	Boundry.
Jefferson	D. P. Monroe	Saluda.
Jennings	J. B. Smith	Queensville.
Johnson	W. M. Province	Providence.
Knox	W. W. Berry	Vincennes.
Lake	W. A. Banks	Laporte.
Madison	Wm. Crim	Anderson.
Marion	Chas. A. Howland	Howland.
Miami	F. W. Conrad	Peru.
Monroe	G. P. Campbell	Bloomington.
Montgomery	W. A. Maze	Crawfordsville.
Noble	Orlando Kimmell	Kimmell P. O.
Parke	J. A. Allen	Rockville.
Perry	J. C. Shoemaker	Indianapolis.
Pike	Leslie Lamb	Petersburg.
Putnam	J. W. Robe	Greencastle.
Randolph	B. F. Boltz	Winchester.
Ripley	D. P. Monroe	Saluda.
Rush	Fred A. Capp	Rushville.
Shelby	B. L. Sutton	Shelbyville.
St. Joseph	Samuel Bowman	South Bend.
Steuben	F. Macartney	Angola.
Sullivan	Thos. J. Mann	Sullivan.
Tippecanoe	J. M. Boggs	Lafayette.
Tipton	J. Wolverton	Tipton.
Vermillion	James Chipp	Newport.
Vigo	J. M. Sankey	Terre Haute.
Wabash	E. Donnell	Wabash.
Warren	W. H. Goodwine	West Lebanon.
Warrick	J. S. French	Lynnville.
Washington	W. W. Stevens	Salem.
Wayne	J. A. Scott	Hagerstown.

The District Societies were represented as follows :

DISTRICT.	DELEGATE.	POSTOFFICE.
Acton	T. M. Richardson	Acton.
Bridgeport Union	J. N. Miller	Bridgeton.
Eastern Indiana.	Wm. Bunyan	Kendallville.
Fairmount Union	Robert Bogue	Fairmount.
Knightstown	W. L. Risk	Greensburg.
Lawrence.	Robt. Johnson	Castleton.
Miami and Fulton	J. A. McClung	Rochester.
New Carlisle	N. W. Garmon.	New Carlisle.
Northeastern Indiana	R. M. Lockhart	Waterloo.
N. Indiana and S. Michigan	Samuel Bowman	South Bend.
North Manchester.	B. F. Clemans	North Manchester.
Poplar Grove	J. S. Spracker	Kokomo.
Switzerland and Ohio	Wm. O. Marble	Vevay.
Remington Fair Association	O. B. McIntyre.	Indianapolis.
Warren Tri-County	Jonas Good	Warren.
Batesville District.	T. W. W. Sunman	Spades.
Urmeyville	John Tilson	Franklin.
Grange Jubilee	D. P. Monroe	Saluda.
Oakland City	Wm. McCockrun.	Oakland City.
Richmond Fair and Driv'g P'k	O. L. Hittle	Richmond.
Kentland Fair Association	Wm. Perry	Kentland.
Wayne Co. Agr'l & Hort. Soci'ty	J. B. Stevens.	Centreville.

State associations were represented as follows :

DISTRICT.	DELEGATE.	POSTOFFICE.
State Horticultural.	E. J. Howland	Howland.
Wool Growers	J. W. Robe	Greencastle.

The President announced standing committees as follows :

On Credentials—Edward Kessing, Wm. H. Goodwine and W. B. Seward.

On Finance—Samuel Hargrove, J. Q. A. Seig and Samuel Bowman.

On Fair Grounds—Clark Phelps, Jonas Good, Frank Macartney, Robert Mitchell and R. M. Lockhart.

On Premium List—O. W. Lowry, Marion Steele, S. W. Dungan and Thomas Nelson.

On Rules and Regulations—John L. Davis, J. W. McKinster and J. A. McClung.

On motion of Mr. Lockhart, it was agreed to hold an evening session to discuss the matter of a new Fair site.

Vice-President Nelson was called to the chair, and Hon. W. A. Banks presented his annual address, as follows:

PRESIDENT'S ADDRESS.

Gentlemen of the Delegate Board:

Another year in the history of our Board has closed, the New Year has dawned, and it becomes my duty to present to you a statement of our affairs and to offer suggestions as may seem pertinent and proper. The season has been one of prosperity, with plenty and to spare. Although not so abundant in some crops as in past years, better prices prevail, live stock was never more healthy, or the season more favorable for their sustenance. Great advancement has been made as a State in all that constitutes enterprise and progress. We are blessed by nature with the greatest gift of the present age, "Natural Gas," and the consequent increased manufacturing interests, the future development of which can only be conjectured.

The Farmers' Institutes, as conducted the past year, has given great vitality to such interests, and a long stride in agricultural education. We would urge upon this convention to give encouragement in every way to this new feature of education, and see to it that our General Assembly gives the proper aid to thus extend and develop the agricultural interests, which is the foundation of all prosperity. In this age of organization and concentration the farmer is beginning to assert his claims to the proud position of holding the balance of power throughout the land, and he is now recognized as an important factor in governmental affairs.

The coming World's Fair at Chicago should engage your attention as to what part the State will take in order to sustain her reputation among the sisterhood of States, and communicate such decision to the next Legislature, as it will be the only opportunity to obtain the proper aid and prepare for the great Columbia Fair of 1893.

Purdue University has two representatives from the Board of Agriculture on the Board of Managers. It is doing a good work, is increasing the number of students rapidly, with the promise of soon reaching its present limits. President Smart will address you and give the operations of the institution in detail.

The efforts of the Board of Agriculture are largely concentrated in the State Fair, which proved to be a grand success as an exhibition, excelling all former

efforts in that direction, and demonstrating the rapid progress in improvement of live stock and labor-saving machinery as no other conceivable arrangement of concentration of enterprise, skill and art could accomplish. As the reports of the Secretary and Treasurer will show, the Fair was not a financial failure as reported. The expenditure of eight thousand two hundred and fifty dollars (\$8,250) on construction account, together with two days of wet weather, cutting short the receipts, has left a balance of four thousand and eight hundred dollars (\$4,800) on the wrong side. This is not chargeable to the expenses of the Fair, although \$2,800 was paid in premium awards more than at any previous Fair, but to improvements.

As the details of the management will be referred to by the Superintendents of each department in their reports, I will only refer to the Fair in a general way. The total receipts from all sources during the year was \$46,921.50; the expenses, \$46,804.59. The receipts includes money borrowed to the amount of \$4,800, and endorsed by the members of the Executive Committee. The last General Assembly appropriated \$10,000 annually for five years to pay the indebtedness of the Board. The second installment was drawn last spring, and with it we took up \$6,000 of cancelled bonds and \$4,000 of purchase notes given for the north addition to the Fair Grounds. There yet exists of the coupon State Board six per cent. bonds, \$29,000; three five per cent. purchase notes of \$2,000, each due annually in March, \$6,000. To meet this we have the three annual appropriations amounting to \$30,000. To this must be added the loans above referred to and \$7,000 guarantee assessment notes due conditionally, but not drawing interest. As an offset to this indebtedness, we have a valuable property in real estate estimated at high figures, and we can safely assert that no similar institution in this country is in a better financial condition.

The valuable location in the corporate limits of the city and cramped condition of the present grounds, together with the great want of transportation to it, has caused much agitation in the community in regard to a change of location for better railroad facilities, and to secure a mile driving track. This matter is of such importance as to deserve your attention, and would suggest a special committee be appointed to report on the feasibility of considering such change. In case of purchase of new Fair Grounds, there will be more land required than the law authorizes the Board to own, which is eighty acres. This should be attended to during the session of the next Legislature, also the release of the second mortgage to the State, given to secure an advance of \$25,000 in the year 1874.

As one of the delegates appointed to attend the meeting of the Western Circuit of Fairs at Chicago last November, which proved to be very pleasant, I will now report that the same dates were agreed upon as last season, fixing the date for the next Indiana State Fair Monday, September 21, being the week following the Ohio State Fair and the week preceding the Illinois State Fair, thus establishing the grand fair route from the East westward. This matter is subject to your approval.

The published annual reports, as issued by the Secretary, are a credit to the Board and all concerned in their publication. They have become valuable books of reference and are appreciated as such.

In closing, I must acknowledge the assistance and courteous treatment from all the members of the Board, thus making duty a pleasure, and especially to all those in an official capacity, as each strove to excel in complying with the orders of the Board, and in doing everything possible to insure a successful Fair.

The address was referred to a committee consisting of Messrs. Lockhart and Seig, of the State Board, and Delegates Hargrove, Lyons and Perry.

Secretary Heron presented his annual report as follows:

SECRETARY'S REPORT.

I have the honor to submit herewith my annual report and financial exhibit of the business of the Indiana State Board of Agriculture for the year ending December 31, 1890:

Total receipts from all sources. \$46,921 50

DISBURSEMENTS.

General cash orders	\$33,764 09	
Premium orders.	13,040 50	
		\$46,804 59
Balance		116 91
Total.		\$46,921 50

ITEMIZED RECEIPTS.

January 1, cash in treasury		\$6,412 63
April 1, State appropriation		10,000 00
February 25, by note to S. Johnson		2,000 00
August 18, note, Indianapolis National Bank		493 22
September 2, note, Indianapolis National Bank.		497 44
October 22, note, Indianapolis National Bank		1,489 00
November 13, note to Wilson Morrow		2,000 00
November 13, note to J. N. Davidson		500 00
November 24, note to Indianapolis National Bank		788 80
Sale of 50-cent State Fair tickets	\$13,561 12	
Sale of 50-cent State Fair railroad coupons	500 50	
Sale of 25-cent State Fair tickets	803 25	
Sale of 15-cent amphitheater tickets.	858 60	
Sale of exhibitors' tickets	208 00	
		15,931 47
Entry fees, speed	\$2,315 00	
Rents and privileges.	3,201 94	
Stalls and pens	1,292 00	
		6,808 94
Total.		\$46,921 50

BOARD OF AGRICULTURE.

ITEMIZED DISBURSEMENTS.

Members, per diem	\$1,785 35	
Salaries	1,666 63	
Printing and advertising.	678 72	
Postage, etc.	318 23	
Incidentals	234 13	
Water rents, janitor and tools.	380 50	
Insurance.	547 85	
Old claims	707 61	
Loans and interest account.	15,041 11	
Total		\$21,360 13

CONSTRUCTION AND REPAIRS.

Labor	\$1,786 05	
Lumber	3,758 84	
Hardware	162 43	
Roofing	369 99	
Piping, etc	166 67	
Repairs	82 59	
Whitewashing, etc.	104 75	
Incidentals	70 56	
Tools.	167 00	
Buildings.	996 92	
Street improvements.	676 00	
Total.		\$8,341 80
Included in above is cost of five new horse barns and Horticultural Hall:		
Horse barns—pay rolls	\$651 68	
Horse barns—lumber, assumed, per contract.	1,270 92	
	\$1,922 60	
Horticultural Hall—pay rolls	\$596 92	
Horticultural Hall—lumber, assumed, per contract	1,161 08	
	1,758 00	

ANNUAL MEETING.

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EXPENSE OF EXHIBITION.

Gate-keepers	\$238 80	
Police	811 14	
Labor and sweepers	589 77	
Awarding committees	477 20	
Assistant superintendents	190 85	
Straw and sawdust	498 25	
Fuel and power	56 35	
Gas	63 50	
Tickets and ribbons	61 25	
Music	300 00	
Rebates	19 00	
Incidentals.	158 10	
Rents, cases, etc	22 50	
American Trotting Association	57 00	
Hose.	38 75	
Total.		\$3,581 96

RECAPITULATION.

General expenses		\$21,360 13
Construction and repairs.		8,341 80
Expenses exhibition	\$3,581 96	
Woman's department	480 20	
		4,062 16
		\$33,764 09

PREMIUM AWARDS.

Cattle	\$2,127 00	
Horses	2,459 00	
Horses, speed	3,150 00	
Sheep	820 00	
Hogs.	1,190 00	
Poultry	550 00	
		\$10,246 00
Farm products	\$540 50	
Horticultural	190 50	
Floral	753 00	
Geology and natural history	59 00	
		1,543 00
Woman's department	\$1,118 00	
Children's department	133 50	
		1,251 50
		\$13,040 50

STATE FAIR, INCLUSIVE.

<i>Receipts.</i>		
Admission tickets	\$15,931 47	
Entry fees, speed	2,315 00	
Rents and privileges	4,493 94	
Total receipts		\$22,740 41
<i>Expenses.</i>		
Members' per diem	\$1,785 35	
Salaries, officers'	1,666 63	
Printing and advertising	678 72	
Postage, etc.	318 23	
Express, telegrams, etc.	234 13	
Current expenses of Fair.	4,062 16	
20 per cent. improvement account.	1,600 00	
Premium awards	13,040 50	
Total		23,385 72
Deficit		645 31

In the itemized receipts appear \$2,500 received by official notes, which have in the meantime been paid off and charged accordingly.

The \$10,000 of State appropriation was applied to cancelling \$6,000 of the Board's coupon bonds and \$4,000 of the purchase notes given for the new addition to the Fair Grounds.

There is now outstanding liabilities—

Note to S. Johnson, date Nov. 13, due one year, bearing 7 per cent. interest	\$2,000 00
Note with individual security to Wilson Morrow, date November 13, due one year, bearing 7 per cent	2,000 00
Note to J. N. Davidson, date November 13, due one year, 7 per cent.	500 00
Note in bank, individual security, date November 24, due 60 days, 8 per cent	\$800 00
There are orders unpaid.	145 00
Accounts unsettled, outstanding	555 00
Interest due on coupon bonds, January 15	870 00
Needing attention	2,370 00
There are outstanding State Board Mortgage bonds, bearing six per cent., payable semi-annually, bonds due July 15, 1891	29,000 00
Three purchase notes, \$2,000 each, due March 9, each year, 5 per cent. interest.	6,000 00
The bonds are provided for by the annual State appropriations of \$10,000.00, April 1, each year for three years.	

INSURANCE.

Exposition building		\$22,500 00
Grand stand, fire	\$8,000 00	
Grand stand, wind	2,000 00	
		10,000 00
Stabling		2,800 00
New horse barns		1,600 00
New Horticultural Hall		1,000 00
Hog and sheep sheds.		1,000 00
Total.		\$38,900 00

The rates are: On Exposition Hall, Horticultural Hall, stables and sheds, \$1.25; on the grand stand, fire, \$1.50; against wind, 1 per cent.

The entries for State Fair were 6,266 (not including the mechanical department, on which no premiums were offered), being 419 more than any previous year, and \$13,040 paid in premiums, an increase of \$2,800 more than any former Fair. As the report shows, there was \$8,341 expended in improvements; this, with the increased premium awards and two wet (main) days of the Fair, causing a shortage of \$10,000 to \$15,000 in receipts, has embarrassed the managers with the deficit as shown.

It is a gratification to know that the Fair was a success as an exhibition, as will be shown in detail by the reports of the Department Superintendents, great progress being made in all the different branches of agricultural industry.

The proceedings of the closing institutes of the season, as embraced in the published agricultural report, gives a fair representation of the work throughout the State in that line, and adds interest to the annual report. The statistical information therein, report of the State Chemist on fertilizers, and the proceedings of the industrial associations, especially the live stock industry, has created a demand for them from far and near, and gives great encouragement to efforts in that direction.

The season's operations show a large increase in the business department, requiring 2,500 letters, 3,000 postal cards, 20,000 circulars and posters, and 2,400 money orders were issued; 5,000 of our annual reports published, nearly all distributed. I have been favored with very efficient assistance, to whom credit is due; not a jar has occurred, nor have we any protest or law suit to report.

I take pleasure in referring to the kind and courteous treatment on every hand, and would be remiss to duty to not specially refer to the press of the State, without exception, in contributing to the welfare of the Board by liberal notices of the State Fair.

The railroads centering at this point did their duty, and the street car company are entitled to special recognition of their efforts to assist the Board in making a success of the Fair.

With kind regards to each and all of my associates, this is

Respectfully submitted,

Treasurer Johnson submitted his annual report, as follows:

TREASURER'S REPORT.

Receipts and Expenditures for the Year Ending December 31, 1890.

RECEIPTS.

Cash on hand January 1, 1890.	\$6,412 63
Cash since received from all sources	40,508 87
Total receipts	<u>\$46,921 50</u>

EXPENDITURES.

Paid on general orders	\$33,488 80
Premiums on cattle	2,127 00
Premiums on horses	5,619 00
Premiums on sheep.	820 00
Premiums on hogs	1,185 00
Premiums on poultry.	551 00
Premiums on farm products	537 50
Premiums on horticultural	187 50
Premiums on Floral Department	753 00
Premiums on Woman's Department	1,118 00
Premiums on Children's Department	132 00
Premiums on Geology and Natural History.	59 00
Total disbursements	<u>\$46,577 80</u>
Balance in Treasury	\$343 70

General Superintendent Merrifield submitted his annual report as follows:

GENERAL SUPERINTENDENT'S REPORT.

GENTLEMEN—I have the honor to submit the following report:

During the past season the race track and about fifty stalls have been rented to J. N. Dickerson, who kept the track in excellent order, and it proved to be probably as good a half mile track as there is in the country.

The turns of the track were covered with straw and manure during the fall of 1889, which prevented the deleterious effects of beating rains and improved the condition of the soil.

I deemed the labor to have been well expended, and have repeated and extended it this fall.

Four barns were built under instructions of your Executive Committee, containing in all sixty-four box-stalls, all lined, and provided with ventilators extending the length of each stall. Barns with a covered walk-way between the rows of stalls, so constructed that visitors could see the animals without being exposed to sun and rain, would doubtless have been preferable, but much more expensive. Public bids were advertised for on these barns, as well as the Floral and Horticultural Hall, and ten bids were submitted. The buildings were well built and at very low prices.

Extensive repairs were made to the main building under direction of a committee of which Mr. Davidson was chairman. The cross-galleries of the main building were removed, and truss-rods were placed so as to greatly strengthen the walls. Many favorable comments have been made on this change, and it is doubtless accepted as a great improvement.

As one improvement always suggests another, it became necessary to build a stairway at the west end of the building. New joists and flooring were placed in a large portion of the main building, and every place which indicated a shadow of danger was thoroughly repaired. The bridges over the State ditch required considerable repairing. Two new barns for sheep were built, and not less than 134 pens for sheep and hogs were constructed. Considerable grading was done along the hill near the north side of the grounds and along Fourteenth Street. Many minor improvements were made, such as under-draining, piping for gas and water, painting roofs, decorating the halls, paper-hanging, whitewashing, fencing, etc.

This exhibit was much larger than ever shown heretofore, and but for the unfavorable weather we would doubtless have had the grandest Fair ever held in Indiana.

At the same rate of increase, it is only a question of time until the present Fair Grounds will be entirely inadequate to accommodate all exhibitors.

Let us hope that when the State Board makes a new purchase that it will provide enough land to accommodate the conditions that may exist when the population of the State shall have doubled its present number, and that it may be able to avail itself of the grand facilities which the Belt Railroad affords for handling a vast crowd.

If the present Fair Grounds are not to be sold, I would respectfully recommend that the following improvements be made:

An addition of at least 30x90 feet to be built on the west side of the Floral and Horticultural Hall, to conform to the architecture of the present building.

Barns to provide for at least 100 horses, to be built northwest of those built during the past season.

The ground upon which these barns are to be built should first be graded down.

The bridges over the State ditch will need considerable repairing, and there ought to be a new bridge built at the end of Delaware Street.

Let the buildings which were formerly devoted to sheep be used for hogs, and use barns 3, 4, 5 and 6 on the west side of the ditch for sheep.

Let no horses be quartered on the west side of the ditch.

I submit herewith a form of lease and a book, to be used for privilege holders, and I recommend that a directory of exhibitors and privilege holders be kept in

the Superintendent's office, by which any person may at any time be informed of the proper location of any exhibitor or privilege holder.

The small number of vehicles which were driven on the grounds this year leads me to believe that it would be profitable to the Board to admit horses and vehicles free.

Many a man might be willing to pay a dollar or two for his family to see the Fair, who would not be willing to pay twenty-five cents for his horse to see it. If the whole family came and brought their dinner (as many could do), the expense to them would be no greater than if half the family came and had to pay for their dinners on the grounds, but the receipts of the Board would in the former case be double that of the latter.

A pet stock and bench show would, I believe, prove an attractive feature, and amply repay the expense attending the same.

The report was received and referred to the Committee on Finance.

The reports of the Department Superintendents of the Fair were submitted as follows:

CATTLE—BEEF BREEDS.

THOMAS NELSON, SUPERINTENDENT.

The exhibit of beef cattle at the Fair of 1890 was good as to quality, but not so much competition as in some former years, still we had a good show, including some of the best Shorthorns and Polled Angus that were on the Fair Circuit, especially the Shorthorn bull, Young Abbotsburn, from the herd of T. S. Moberly, Richmond, Kentucky, and the splendid Angus heifer from the herd of Leslie & Burwell, Cottage Grove, Wisconsin. I do not desire to detract anything from other animals in the different exhibits in thus calling attention to those remarkable animals. Some very good Herefords were shown, but hardly up to the standard of some former Fairs. Aside from the Angus heifer, from the fine Wisconsin herd alluded to, some very fine specimens of that breed were shown by Indiana breeders. Two very good herds of Galloways were on exhibition, and attracted considerable attention. The Polled Durhams from Hamilton, Ohio, a new breed at Indiana Fairs, were admired by every one, and, judging by appearances, their owners were kept busy answering questions as to their origin, and other queries likely to be propounded in regard to their purity. To a majority of Indiana fairgoers they are a new breed.

The success of the exhibit in beef breeds was marred by the continuous rain on one of the main days of the Fair, and the cattle were shown to a great disadvantage, in fact were shown to empty benches. The ribbons were tied by the

judge in the stalls. The exhibit of cattle in all classes was held under very unfavorable circumstances at best, and fewer persons availed themselves of the privilege of viewing the cattle while in the show-ring than at any previous Fair, partly, as we have said, by the very inclement weather of Thursday, also, by the peculiar position of our show-ring. We were placed between two side-shows, or rather the shows were placed one on each side of us, yet we occupied the grounds for years set apart for the exhibit of cattle. I hope that the General Superintendent will at future Fairs so far lay out his plans that the freak and fake shows, if allowed on the grounds at all, will be so far removed from the grounds allotted for the cattle exhibit that persons of refinement can visit the cattle ring during the show without being subjected to such unbearable annoyances as we had at our last Fair.

I would most respectfully recommend to the consideration of the Board when making out the next premium list, that more liberal premiums be allowed. The class premiums are all right and complete as far as they go, and should not be changed, but additional classes, or, more properly speaking, a grand sweepstakes, should be added, to be made up of all the class winners, both first and second premiums, of all the beef breeds combined, and also, which should have been stated first, a sweepstakes by ages similar to the one adopted before a reconsideration was carried at our last February meeting.

I would also recommend that the duties of the General Superintendent, Department Superintendent and Superintendent of Stalls be more clearly defined. The Superintendent of Stalls should, in my humble judgment, have the sole control of assigning stalls, and all communications in reference to stalls, received by the Secretary prior to the Fair, be referred to him, and that he should be on the ground during the entire week previous to the Fair. These suggestions are made in the interest of a more complete system for our future exhibits. As my connection with the Board will close with the present meeting, I conclude my report with good wishes for the future management of the Indiana State Board of Agriculture.

CATTLE—DAIRY BREEDS.

JASPER N. DAVIDSON, SUPERINTENDENT.

In the dairy department the exhibit consisted of 34 entries of Holsteins, 27 of Devons and 45 Jerseys, in all 116 entries.

The exhibit throughout was a superior collection of dairy animals, creditable alike to the exhibitor and management.

The expert, in making awards, applied the milking test as to quality and condition of udder after milking.

The prompt manner in which the awards were made, together with the frank explanation of reasons, seemed to infuse confidence among the exhibitors. Many owners of dairy cattle expressed regret that they did not enter their stock to compete for the awards under an intelligent expert.

From observation, we are inclined to believe that the Devons are in the wrong class when with the dairy breeds.

Their peculiar tendency to take on flesh with liberal feeding proves this breed to be more at home in the beef ring.

It seems that an expert in the dairy department can not give credit for fleshiness, or a tendency to it in the half-and-half breeds. This matter should be carefully considered by the exhibitor.

General satisfaction prevailed among exhibitors as to classification and treatment while on the ground.

HORSE DEPARTMENT.

E. H. PEED, SUPERINTENDENT.

The Horse Department was, in point of number and quality, rather an improvement over the year before. Indeed, I think it was the best show we have had since I have been connected with the department; especially so in the light-harness class. The aged horses in the light-harness class were by far the best I have ever seen on the grounds. The Coach and Cleveland Bays were well represented with some very excellent individuals. We found our stabling entirely inadequate; we had to utilize some of the cattle stalls and send a great many horses to town, notwithstanding we had erected something near one hundred new stalls. Our stabling is not what we should have, and I would recommend tearing down the old shed on the east side and building a sufficient number at some more suitable place on the grounds as soon as possible.

The number of entries in the Horse Department was 376. I found our new classification worked well; while it cost us more money, it gave much better satisfaction. My opinion is that we should give a few more classes in the way of stallions and their get.

SPEED RING.

B. F. CLEMANS, SUPERINTENDENT.

In this department of the State Fair, I have to report that owing to the increase of purses offered for speed, the entries in 1890 largely exceeded those of former years, there being eighty-seven entries in all classes.

The amount paid out in purses was	\$3,150 00
The amount received from entry fees.	2,315 00
	<hr/>
Excess of purses over entries	\$835 00

This we deem a very fair showing, owing to the condition of the weather and track. The rain during several days of the Fair militated much against the management of this department as well as others, and I believe that with good weather the entries in the various classes would have paid the purses in full. I am warranted in saying that universal harmony prevailed among the horsemen, and I am safe to say that there were few complaints from them.

I am led to believe that a further increase of purses would prove beneficial to the society, and would prove a self-supporting department of the Fair.

I would further recommend that in assigning stalls for future years, they should be especially set apart for the speed horse, and so located that they may be as nearly adjacent to each other as possible, so as to enable the horses to get on the track with more promptness when races are called.

SWINE DEPARTMENT.

LLOYD S. JONES, SUPERINTENDENT.

The swine exhibit was the largest ever on the State Fair Grounds, and, of course, as good a show of hogs as was ever brought together in the United States. Again demonstrating our lack of accommodation, it was indeed very inconvenient for exhibitors to have their stock lie in crates in the rain for two or three days, waiting for pens to be built.

We would urgently recommend that additional pens be built.

We would also recommend that the Superintendent of that department be placed in charge of the pens, so he can classify the breeds.

I would further recommend that classes be opened for each breed having established records in the United States.

SHEEP DEPARTMENT.

S. W. DUNGAN, SUPERINTENDENT.

In looking over the reports of the Sheep Department in our Annual Agricultural Reports for a number of years past, I find that the exhibit in this department at our recent State Fair far exceeded in numbers any former exhibit, and, as I have been a close observer of this department, I unhesitatingly say that it was never surpassed in excellence of quality. The different breeds were represented as

follows: Cotswolds, 40; Merinoes, 45; Shropshires, 108; Oxforddowns, 38; Hampshiredowns, 10; Southdowns, 46; making a grand total of 287. Of this number, Indiana is credited with 167; Illinois, 48; Ohio, 18; Michigan, 36, and Kansas, 18. We find it impossible to make mention of the fine exhibits made by enterprising individuals and firms, who not only breed fine-blooded sheep, but are spending much time and large sums of money in securing the best specimens of the various breeds from beyond our own shores, and we believe it is no exaggeration to say that at least three-fourths of all the sheep exhibited at our late Fair were imported.

We desire to be excused, however, from entering into details or personalities, as we can not do justice to all, and therefore forbear to mention any. Suffice it to say that both the class and flock shows were the grandest ever witnessed on our Fair grounds. We were very fortunate in securing the services of S. H. Todd, of Wakeman, O., as expert judge in this department, and we have no hesitancy in saying that he is the best all-around judge we have ever met.

FARM PRODUCTS.

J. A. M'CLUNG, SUPERINTENDENT.

As Superintendent of Farm Products, I can say that, notwithstanding the unfavorable conditions the past season, the space assigned to this department was filled to overflowing with a superior quality of the products of the farm. Every class was represented except the dairy, and all that was lacking to make a fine display was sufficient space. In addition to our own State exhibit, Ohio and Colorado were well represented—the latter with a very fine exhibit, showing what can be done by irrigation. There was also a very fine display of bees and honey, more so than for several years. It has become almost an established fact that drouth or other unfavorable circumstances do not affect the exhibit at the State Fair very much. There could be almost double the amount of space used that has been usually assigned to this department. There need not now be any question about space, especially since the Horticultural Department is occupying other quarters. We were very fortunate in securing a first-class judge, whose decisions were accepted as correct. It is generally believed by exhibitors that the list should be revised and differently classified, so that professional seed men, market gardeners, etc., should be required to show in a class by themselves.

POULTRY DEPARTMENT.

It affords me pleasure to be able to report the largest display of poultry ever exhibited at the State Fair, comprising a great number of grand birds of all varieties enumerated in the list, and competition in some classes was very strong. There were several displays that deserve special mention, but time and space will

not admit of an account of each. As to the number of entries of each breed we find that the Barred Plymouth Rocks head the list with about 70 birds, followed by the White Leghorns with 65 birds, Partridge Cochins, with about 60 birds; Light Brahmas, Langshans, Brown Leghorns, Plymouth Rocks and Pet Games, 50 birds each; Silver Wyandottes, 40 birds; B. B. Red Game Bantams, 38 birds; Buff and Black Cochins and Dark Brahmas, 35 birds each; Silver Hamburgs and Houdans, 33 birds each; Golden Seabright Bantams, 28 birds; White Wyandottes, 25 birds; Black Minorcas, 24 birds; W. C. B. Polish and White Cochins, 20 birds each; Black Leghorns and Red Caps, 18 birds each; Black Javas, 16 birds; Golden Polish, 15 birds; Silver D. W. Bantams, 14 birds; B. B. Red Games, 12 birds; W. F. B. Spanish Silver Seabrights and Golden Wyandottes, 10 birds each; Andalusians, 8 birds; Golden Hamburg and Silver Polish, 4 birds each; Pekin Bantams, Red Pet Games, Japanese Bantams, White Minorca and Silver D. W. Games, 2 birds each, and about 50 others not tested; turkeys, 60; geese, 44, and ducks, 50, making a total of about 1,164 specimens that were entered for competition.

The pigeon and pet stock show was under the control of the Indiana Pigeon and Pet Stock Association. They received their own entries and paid their own premiums. There were about 350 pairs of pigeons and a large collection of pet stock of a very fine quality. This seems to be one of the attractive features of the Poultry Department, and should be encouraged by continuing the same plan as adopted this year. The general opinion was that a dog show should be connected with this department, as a large number of dogs were brought in and cared for as long as space lasted, after which they were turned away. The exhibit in this department is increasing, and will soon be immense at the present rate. The old quarters are not sufficient to accommodate the exhibit in a creditable manner, which will soon have to be replaced with a new and more capacious building. Until such building is erected it can not be expected to increase the exhibit very much. Would suggest that when such house is built that there be new coops also, as the old ones are in very bad condition. The new coops should be of uniform size, and require exhibitors to use them, and, if necessary, charge a reasonable coop rent (the same to accompany each entry), which would aid very much in keeping out inferior stock. Entries should close not later than 10 A. M., on first day of the Fair, in order to give time to classify the exhibits, which would add very much to the general appearance of the show. Unless the entries do close about as stated above, it will be almost impossible to classify.

HORTICULTURAL DEPARTMENT.

R. M. LOCKHART, SUPERINTENDENT.

In accordance with the action of the Delegate Board at the annual meeting in January, recommending the same, the State Board proceeded to the erection of a new Horticultural and Floral Hall, which was completed in ample time for the opening of the Fair. The building was constructed after a plan and design furnished by the State Florists, and which was supposed would be of sufficient capacity to accommodate both florists and horticulturists. On my arrival on the grounds for the purpose of apportioning the building to the use of each of said associations, I soon made the discovery that in order to permit the florists to make the display contemplated by them, it would require more space than was contained in the entire building. The only thing I could do was to divide the available space, giving the florists one-half, and the balance divided between the State horticulturists and the State at large for a show of fruits. The amount of material that was brought to the grounds to be placed on exhibition by the florists, if it had been properly placed on exhibition, would have completely filled the building, and would have made the finest floral exhibition ever seen at any of our State fairs, but the limited space allotted them compelled the placing of plants and flowers in an almost compact body, and after every inch of space was occupied, there was an overflow of cut flowers and floral designs covering tables over 100 feet in length that had to be placed in the Ladies' Department on the second floor of the Exposition Building. This division of the Floral Department was a great injustice to the florists, but under the circumstances it could not be avoided.

The Horticultural Department was a great surprise to every one that visited it. The people generally supposed that there was almost an entire failure of the fruit crop, but a visit to the hall soon dispelled that idea. The exhibit of fruits in both the State Horticultural and the State exhibit was very fine indeed, there being over one thousand plates on exhibition, consisting of apples, pears, peaches, plums, quinces and grapes. A portion of this display was made by parties from Ohio, but mainly from our own State, the best of the apples coming from the northeast portion of the State and the southern half of the State.

Should the State Fair be continued on the present grounds, it will be necessary to add largely to the new Horticultural Hall in order to accommodate the increasing exhibits. This can be cheaply done by the building of an annex on the west end. If that is done I would advise the use of the entire present space for the floral display, using the new addition for the Horticultural Department.

GATES.

J. N. BOGGS, SUPERINTENDENT.

The work at the gates passed off smoothly and pleasantly, nothing of a disagreeable nature occurring, except the usual annoyance of booth or privilege helpers. I renew my suggestion that the privileges either be sold so the purchasers can afford to buy tickets for the help needed, or at time of purchase they agree with the General Superintendent how many helpers they may be entitled to have passed in free, and have their names registered and pass in through a little gate used by help in the Mechanical Department. The new gate established on the north side was not used enough to much more than pay the expense of keeping it open.

REPORT OF STALL SUPERINTENDENT.

BY J. Q. A. SEIG.

The sale of stalls and pens amounted to \$1,292, against \$1,051.20 in 1889, a gain of \$240.80 over the previous year, which shows a good, healthy increase, which might have been further increased had there been sufficient pens completed to have received the stock as it arrived on the ground; but this was no fault of the General Superintendent, as no one expected such a deluge of stock, especially sheep and hogs.

In presenting this report, I would respectfully call the attention of the Board to rule 7, which is certainly very absurd and susceptible of contrary constructions, to the annoyance of all parties concerned. I would recommend the revision of this rule so that there can be no possible misunderstanding.

WOMAN'S DEPARTMENT.

ROBERT MITCHELL, SUPERINTENDENT.

One year ago the State Board assumed the control of the Woman's Department, and the President at the February meeting of 1890 assigned to me this department. As Superintendent, I, in compliance with the requirements of the Board, will report that, in assuming the duties of this department, it was with considerable misgivings as to its success during the State Fair. However, the exhibitors appreciated the action of the Board by responding with a

largely increased exhibit, amounting, in the aggregate, to 317 entries over the preceding year. Every class was full and crowded to its utmost capacity. The work of the committee was accepted by the exhibitors as being impartial, and the awards honestly and fairly made.

The business exhibit in the Woman's Department was both attractive and beautiful, reflecting credit on the taste and skill displayed in the arrangement. The additional stairway leading up to the Woman's Department was much appreciated by both exhibitors and visitors, as the building during the rainy days of the week was crowded to its utmost capacity. Changes in the Woman's Department have been noted, and will be submitted to the Board for action when it meets in February to revise the premium list.

In concluding this report, it might be well to state that the exhibitors, at the close of the Fair, returned to their homes, promising to bring larger exhibits next Fair, which will make it necessary for the Board to increase the exhibition space in the Woman's Department.

SALE OF FAIR GROUNDS.

Mr. Lockhart. I would like to call the attention of the Board to a matter all are interested in. All of you, perhaps, have noticed the agitation that is going on in regard to the sale of the old and the relocation of a new Fair Ground. The Commercial Club of this city have asked that the Board consider this matter that they may come before us and discuss it, and it has been thought best that this evening be devoted to that purpose. As the programme shows, it is not to be called up until Thursday. But we want every delegate to be here, and every member, and it was thought best by our President and others that it be presented to-night. I therefore move you that that be the order for this evening's meeting at half-past seven o'clock.

Chair. Are there any remarks upon the subject? It is a matter of a great deal of importance to us. I hope it will be carried, and that every man here will be present to-night.

The motion carried unanimously.

A Delegate. I move you that a committee of three be appointed to wait on the Governor and invite him to deliver an address.

The motion was seconded, and carried unanimously.

The Chair appointed as such committee, Messrs. Robe, Davidson and Johnson.

Chair. Now, if the committee chosen will wait upon the Governor, we should be pleased to have them do so.

GOVERNOR HOVEY'S ADDRESS.

Gentlemen :

I regret that I am under a misapprehension in regard to my being expected to make a speech to you to-day on agriculture, and I regret more that I have not the proper information to address as many intelligent farmers as are here gathered on that subject as I ought to have, if I would make the attempt. All that I can say to you at this time will be of a general character. Indiana has an area such as makes it probably the most favored State in the Union for agriculture. Its soil, climate, water and altitude are unrivaled, and it has more tillable land for its area than any other State of the Union. With these great advantages, then, it is the fault of the people of this State if they do not forge ahead of any other State in the Union in agriculture. I have been thinking for some time past, and I think so still, that too many burdens are laid upon the farming class of this State. All that you have—land, cattle, horses, everything—is exposed to the gaze of the tax-gatherer. It is not so with other men in other vocations. They can conceal and hide their treasures, and they are not called upon, as the farmer is, to bear the burdens of the State. That might seem little to you; to me, gentlemen, it is highly important. Indiana, from year to year, is involving herself in great indebtedness, and unless it is checked in some way, the burden will continue to fall upon the land owner of the country. Our law-makers never dream of any other form of taxation than poll-tax, land and property. Why, gentlemen, there are other States that don't pay one cent for State taxes on their lands. Connecticut pays one mill, or one cent on the hundred dollars. New York pays three mills and $\frac{5}{100}$. Indiana has been paying \$1.20 on the thousand, and it seems to me to-day that if we intend to pay our debts we have got to raise that tax or take the plan of other States and make the other institutions share in paying the burdens.

That is not very much of an agricultural speech, but I am speaking for your benefit. I know very much less than I ought to know about farming, but I was a farmer once. I own lands and have them cultivated. That was the admonition that God gave Adam in the Garden of Eden—that he should till the soil. It is an honorable avocation, as much so as any other avocation. I thank you, gentlemen.

Dr. Parsons, of the National Department of Agriculture, Washington, D. C., was introduced, and addressed the Convention on

CONTAGIOUS ANIMAL DISEASES.

Mr. President and Farmers of Indiana :

I feel it an honor that I am permitted to represent a department which belongs to you. I feel that that honor is increased by being permitted to meet you to-day. I am always somewhat in doubt when I stand before an audience that gives that evidence of thought and intellect that I see before me to-day, because I place no

great value upon my own abilities, still I have a message for you, and I will try to deliver it within the time prescribed, so as not to embarrass you. Some of us at least have lived long enough to see a great change in the agricultural condition, I know by the color of your hair, and you know by the color of mine. When we were boys, a great many of us knew about the standing the farmer had in the town. We knew about how far his voice would reach should he have dared to demand anything—*should he have dared*. We know that it was only here and there that a farmer was admitted to those higher circles of thought. Some of us in our recollection have seen those days, the days when the farmer's family were not looked upon as they are now; and we must admit that we didn't see the culture in the farmer's household that we see now. We have seen such a change. The farmers of this great country, from every section, have come forward about in proportion to their advancement in culture, and in their refinement, and the opening of their eyes in seeing their own rights. They have come forward with their claims, and, at last, with demands, until they have received a response from their servants at the seat of government, and are there represented to-day as a department. I speak of this because I wish you to understand or take hold of the thought of what that department is. It is a department. It is no longer a side-show of some other department, without funds enough to move; without men enough to go forward and inspect anything simply for the lack of power and legal means to do anything. In the Department of Animal Industry they found skill, they haven't lacked skill, but the funds have been so low that it wished a mouth-piece in the Department. They have a Cabinet officer now. He knows your needs and what rightly belongs to you, and he brings it into the Cabinet, where it speaks for you, where your voices can be heard. That change was wrought by the exercises of the farmers in the Farmers' Congresses and Granges. There was a persistent effort that convinced this Government that there ought to be a department. It was the appeal from one-half of our common people. It has a mouth-piece in Washington now; it has the ears of the President, one who has force with the legislators there to convince them that something is needed, when something is needed. Have you thought what it means, that Department of Agriculture? Probably the Department of State will always be the great department, and the Department of the Treasury will also be a great department; the Postoffice Department will be great, and greater when the people grow greater, and so with the Navy. We will grow greater as our needs grow greater. We will all consent to that. But take the army, that will not grow greater if we can help it. I do not believe in standing armies. I will suggest to you here, my friends, that something like \$29,000,000 is necessary to support what is called 25,000 men, and it falls so far short of the actual men in the army that there is one million and a quarter for every thousand men in the army; and if the great army of agriculture had a million and a quarter given them, they would call that a reckless appropriation. I speak of this because the eyes of the nation are not yet open fully. I speak of this because our legislators' eyes are not fully open to the importance of it. What do we want? We want law. I do not say that one dollar should be taken from any other appropriation made.

That is not my business here. I am here to say that the Secretary of the Board of Agriculture should have all that is necessary, if it be five millions.

There are hardly such interests at stake in any other department in this great nation as in the Agricultural Department, and I have merely opened the lids to allow you to peep in to see the truth as it is and what we must overcome.

What I wish to talk about to-day more particularly is inspection. You will remember that appropriations have been made at Washington for the Secretary of Agriculture to take his position. Because of that appropriation I am before you to-day. Because of that appropriation there have been a good many men added to the force of the Bureau of Animal Industry for inspection. You have read, and heard, and know the steps taken by the Secretary to stamp out pneumonia. I know him better than you do. His feet being very large, when he sets himself he stays, and he got the appropriations he wanted, and wiped, thereby, pleuro-pneumonia off the continent. That is what you want. The intelligent farmers believe in that kind of business. They don't believe in dillying and dallying with a thing because some politicians do not believe in it. They are afraid the Constitution of the United States will be stepped on. The farmers will take care of it; they know what is wanted. Since the steps taken under that law there has been but one case of pleuro-pneumonia, and that was on Long Island—one isolated case. He thought it wasn't proper to accept all the reports from the old country; but he sent over inspectors. They accepted our inspectors over there and joined hands, and there was no pleuro-pneumonia about it. Then, you see that that act enabled that department to take the step and take hold, as far as this disease is concerned; we are done with it locally. Only we want the same means to be kept up—the employment of such inspectors. There have been a large number of inspectors appointed, and I am one of them, to stand at the gateways and see that no diseased animals come to our shores. No one can be accepted until a certificate is signed by him that there is no contagious disease there. It is for the farmer that we prevent these diseased cattle from coming. Pleuro-pneumonia is prevalent in France, and yet they cry against ours, where there is none. There is a cry against the exporting of cattle coming from this country, but at all exporting points they are there. This is a good thing. This is because you have a department of your own; because you wake up to your rights and demand that something be done. Why, a prominent Iowa farmer came to Washington to get something done, and he had been a Congressman there himself, and he said he thought he was a good enough lobbyist to do the business, but he could not. He brought a diseased liver there and showed them what a diseased liver was, and he had to do that to wake them up, and through these exertions they allowed us this protection. You will remember, also, that the Agricultural Department reached out its hand and kept Texas fever from coming into your country. He says: "No more of that shall be done." What has been the result? The result has been that cattle on which it was necessary to pay 10 per cent. insurance are down to 3 per cent., so safe are you in buying cattle in the stock yards. You see that your department is doing wonders for you. You have a department, and through it you speak. You tell what you want and demand what you want. How would it be if all the farmers of the country, without regard to any special party, should say what they want to the Legislators at Washington? We realize that a great work is being done for us by our servants there. Let it be so stated that they should know what the law should be.

Let your little strifes alone until this is done. Suppose this is done by the farmers of the country, what will be the result? I have been to a number of farmers' conventions in the different States, and I have looked them in the face, and I know that they dare tell what they want to Congressmen, or anybody else. Speak for co-operation and support. Speak for sustaining your own department. Ask and demand it, and you will get it. The Pure Feed bill that is before Congress now will have some constitutional question raised against it, and they will quibble, probably, and shelve it. Everything that can be called inter-state trade at all should be placed in the hands of the department, so that proper inspection could be made. The traffic association should be more careful, so that you should know what is what. Every State should pass a law so in harmony with the laws of the United States, when these United States laws become what they should be, so that when you act, and when Ohio, Wisconsin or Kentucky act, it will be in harmony with their and your law, and in harmony with the department at Washington. If the national laws and the State laws harmonize, then there will be no violation of the State or national law. A more careful inspection should be urged. These exporting places should be watched, so that canned meat, and fresh meat, and other meats are to be just what you want. And I don't know of anybody but the farmers of the country to bring this state of affairs about. Suppose there is a disease so contagious that when you walk across a field where stock has died, you can walk ten miles and carry enough on your boots to infect all your stock. Suppose it is so bad that when you ship to Chicago, or some other port, that this disease is so powerful that when you receive lumber back on those cars you may infect your stock by building a pig pen or stable out of the lumber. A great many farmers are not posted in these things.

In Wisconsin, which is my home, they have been troubled with hog cholera in a neighborhood where they had never had it before. Knowing of this, I went to the gentleman—a gentleman who had been for nine years Executive Clerk to the Governor. He is a great Jersey man, a breeder of sheep and Poland China swine. I went to him and I said: "Mr. Hacker, you have hog cholera." He was in the Governor's office at the time. I said: "Where did you get it?" And he said: "I don't know; it must have come on the wind." And he had studied diseases a good deal. I talked to him a while, and I said: "How are the Jerseys?" And he said, "Fine." "Show them up anywhere this year?" "Yes," said he, "and they were fine Jerseys." And I said: "What did you ship them in, and what did you bring them back in?" He said: "I shipped them in hog cars." "That had not been cleaned," said I. And he said: "By-ging, I did ship them that way." He put these cattle in with his hogs, and they had hog cholera. And I knew another man, and he said there was no exposure of any kind that he knew of, and a few months before his neighbor had had the disease among his stock. He had walked through his neighbor's pens, and in due time he had it. Mr. Prime, at Oskaloosa, Iowa, who was a prize-winner, had just lost 200 head, worth \$4,000. The money was in bank when they were taken and died. He sent it all back again. They had died and kept dying. Where did he get it? The hogs that he had over in Illinois taking prize after prize, were placed in some loose hog cars, and they took

it and killed the rest of his hogs. Another man bought one of them and innoculated his own herd. He didn't know anything about it.

I will speak about another thing. In Janesville, Wisconsin, where they had a soap factory, they had been strewing the virus all over the country because they didn't know any better. They came to Mr. Prime and offered him hundreds of dollars for his hogs, and he said, "You can't have them for thousands; they'll go down into the ground, and they'll be buried with lime. I will not have the name of spreading this terrible disease." That is the kind of a man. He didn't want it to spread from him; he didn't want that reputation. He said he would go out of the hog business until he knew that he had cleared out the virus from his place. You are known all over the world, gentlemen, because you have a department and it has put its foot and stamped out one of the worst diseases that infest our land, and that department is anxious to do more in the same line. It is for you to keep up your energies. You have done so much, and you can do more. I hold that the great duty is inspection. I hold that everything tending to the spread of these diseases should be inspected. It will do no harm to the railroad company or the slaughterer, but it will be a benefit to all to rid this country of these foul diseases. All the efforts that I know of to produce medicine to cure hog cholera is of no use, so far as I can learn. Like the human family, they haven't done any good, consequently I will never take any medicine myself. I have a man who comes to my house, and he said: "I have got a medicine that when I put a little on their tongue they will never have the hog cholera." I said: "If you will prove it I will not give you a cent, but I will take it all over the country and give it to the farmers of our country, and you will never want for anything. I look for that bottle every day.

There is no place in the world where such efforts are being put forth as in the upper part of the Agricultural Department, where they are laboring to wipe out these terrible diseases. Ask, when you go to Washington, to go up to see the wizard's room. You will see men there in the laboratories inoculating guinea-pigs and other animals and watching the result of their experiments. Dr. Smith is such a wizard, and Dr. Sullivan, and Dr. Curtis, another skilled veterinarian—another, a skilled man on worms. All these men are skilled men, studying the causes of and cures for these infectious diseases. Dr. Smith thought he knew, and all the farmers that have been troubled with Texas fever thought that they knew, that the little animal that crawled from them was the thing that caused it. He got some of the eggs of the little fellows; he put them in a cup and kept them so cold that they could not hatch. He develops the little fellows, puts them on a clean steer and kills him with Texas fever. Is it good for anything to know that? Dr. Curtis told me not long since that he sent an emulsion down to Texas—Texas fever didn't hurt the Texas steers—but he sent it to a Texas man—a preparation to swab the cattle—and he sent word back: "It kills them every time." They are getting there, but it is hard work—night work. The work is being done by skilled men—scientific men. Is it worthy of your support? Does it need your support? Yes, it does. Then let your voices be heard, and speak into the ears of your Congressman. If you are a Republican, whisper to the Republican Congressman; or,

if you are a Democrat, whisper to your Congressman. Help these men who are trying to work out these problems for you at Washington. See what they are doing for you, and we hope to see the day that they will say to the farmer: "We will take care of the hog cholera for you." They are accomplishing it in other lines.

I do not know certainly that Professor Wiley will be here to-morrow; I think he will be. I will not infringe upon his ground then. But what I wish to talk about a little further is, that you have a great many other interests that need a little law, too. I wish only to impress upon your minds of going into the inspection business as a great, grand thought in this State; that you have skilled men working in Washington, men who understand the work and are working along the lines to success. You are the men they are doing it for. You are troubled with hog cholera, and sheep scab, and pleuro-pneumonia. A little local inspection reaches only so far as any other little local remedy, and no further. You don't look after these things. You have created the Department, now give it more money, more strength, and stand to it with both your shoulders, and I am here to assure you that the work will be done. Listen to no stories as to what this thing on this side will do, and on that side will do. Never mind the man who has the cholera remedy. Don't believe the man with the cure-all book who seeks to fatten his bank account. Give it into the hands of the scientific man. Your scientific man will corroborate it all. I don't know what your State law is, but I would urge upon the farmers to urge upon their legislators to have the State laws to hold down these diseases, to quarantine the glanders, pleuro-pneumonia and hog cholera, to prevent exposure as soon as it is known. Make it a fine and misdemeanor to sell a hog that has died from cholera. Bury it with lime. Wisconsin has asked me to give them the needed items. They want to pass a bill that will give them true force in their State to prevent the spread of these contagious diseases. The necessity of a united thought in these directions is what is wanted. It is not a political matter. If it is political, it is only political so far as it comes into law-making. Let us have laws that so nearly coöperate with each other that they will suit every case and meet the wants of all. There should be laws on inspection, inspectors at every port where needed. Let the law go so far, and no farther, where there are these diseases.

I thank you, gentlemen, for listening to me so attentively and patiently.

Chair. Are there any remarks on Dr. Parson's address?

Mr. Lockhart. I think I voice the sentiments of this audience when I say that we have had the pleasure of listening to a most interesting and instructive address by the Doctor, and I move you in this behalf that we tender a rising vote of thanks.

Carried unanimously.

Professor Plumb, of Purdue University, delivered an address on

FUTURE AGRICULTURE.

It is in the year of our Lord 2000, and Henri Joly, the Director of a French Agricultural Experiment Station, and Richard Grimes, holding a like position in the Indiana Agricultural Experiment Station, are in correspondence with each other. At the International Conference of Station Directors at Berlin, they had met and begun an acquaintance, which had continued by means of telephone correspondence in matters pertaining to agricultural science. To be sure, America is but a short distance off, and M. Joly's private flying car could convey him there in but a few hours, but M. Joly is such a busy man that it is a most difficult operation for him to leave his work long enough to eat his meals like a rational animal. In fact, his wife complains that he neglects her and the family in general for his phosphates and nitrogen feeders, and electric plants.

M. Joly, in his communication with Professor Grimes, had expressed a very great desire to learn about the American methods of farming. When a boy he had heard his grandfather say that while the Americans were a very *chic* people, they were the most profligate of their resources of any people on the face of the globe; but since his grandsire's day he knew that the Americans had changed greatly, that they were no longer aborigines, but represented the most advanced type of an agricultural people. As a race they had always been famous for their Yankee ingenuity and genius, and while in the nineteenth century they had astonished civilization with their mechanical devices for the benefit of commerce and the arts, the dawn of the twenty-first century lighted up a more wonderful and marvelous era of agricultural progress than the sanguine students of a century before would have ever dared to conceive, for, realizing that agriculture is the true foundation of a national prosperity and the source of all wealth, the American people had bowed down to the Goddess of Agriculture, and, after the manner of Edward Bellamy, had trodden Mammon in the dust. The bright, ambitious students of the day concentrated their thoughts upon agricultural science, and the leading institutions of learning throughout the land were known as agricultural colleges and universities. In this respect the Americans, with their accustomed wisdom, had recognized the necessity of concentrating their efforts to the development of the fount of national prosperity—*agriculture*.

One night in January, according to agreement, at the urgent solicitation of M. Joly, Professor Grimes delivered a telephonic lecture* to the students of the National Agronomic University of France, on "The Economy and Methods of American Farming of To-day." About 1,000 students gathered in the telephone hall at the college. This room was of special construction, having a wide rear, and gradually coming to a point or focus, as a funnel. The floor and furniture were heavily rubber coated, so that no appreciable noise occurred in the room through walking or moving about. A large telephone connected with the point of the room from without, and 1,000 small telephones united with this one, and the diverged to each desk in the room, where it was connected with the side of a head-rest. Each listener simply leaned back in the chair, the telephone came in contact with the ear, and the voice was heard.

*Volapuk is now the common language.

The following is an abstract of the lecture as prepared for the *Paris Temps* by one of the instructors in the University.

Said Prof. Grimes: In the latter part of the 19th century, the people of the United States first turned their attention to the development of agriculture from a scientific standpoint, by establishing a number of experimental stations. This was first done by several individual States, notably Connecticut, New Jersey, North Carolina, Massachusetts, New York and Ohio. In a few years, however, the Congress of the United States, impressed with the great value of the work in agricultural research done by the then existing State stations, passed a law donating to each agricultural and mechanical college that had been established by government action, a sum of \$15,000 each per annum, for the furtherance of agricultural research. These institutions thus assisted by necessary funds, produced such effective results that very early in the 20th century they were greatly increased in number by Congress establishing one station in each State for every 100,000 inhabitants, so that as a result, some States had two score or more stations scattered over their boundaries, in which labored eager and wise investigators, graduates of our agricultural colleges. So effective has been the work of these institutions, and the agricultural colleges of the country, that to-day each county in every State supports an agricultural experiment station. These county stations are officially connected with a central station, with headquarters at the State Capitol, and all these State stations have official connection with the United States Experiment Station at the Capitol of the Nation—Washington. No scientist is employed in any of these stations unless a graduate of an agricultural college, and he can not hold a position without having passed a rigid examination before a Government Examination Board, consisting of ten station directors, who meet once each year for this purpose. Hence these experiment stations are entirely under the control of men specially adapted to the work, and consequently the results secured from their labors are decidedly satisfactory. As we have no politics now, as in former days, one of the serious obstacles to progress in this work has been removed, for incapable men, appointed through political influence, in this work are a thing of the past.

The farmers of America are a very happy and prosperous people, and this has been brought about through a combination of education, with an application of methods secured through facts deduced from station investigation. The agricultural school sent its graduates among the people; farming practices gradually improved through the influence of these young men, and as steadily the percentage of illiteracy and ignorant management was reduced. Finding that agriculture was becoming a fashionable occupation, many people of rare ability adopted it as a profession, so that to-day this business is followed by a more illustrious class than is any other kind of labor. It combines such independence, such delightful living, such a rational application of the mind and such helpfulness, it is far more attractive to our people than anything else.

Our farms are all small holdings, the largest being fifty acres, while the ordinary size is ten acres. Each homestead is located about 10 rods from the asphalt roadway, while the barn (we have but one barn on a farm in America) is located in the centre of the farm. A pneumatic tube running underground connects the

cellar of the house with the barn, so that when having no other means of transit, unless to walk, persons may enter the pouch of the tube and be conveyed to and from the barn with electric rapidity. Horses are used some by farmers, but generally vehicles having pneumatic rubber-tired bicycle wheels with ball bearings are conveyed from point to point by means of electric motors stored beneath the wagon-bed. Our modern electric motor is noiseless, is easily managed, and gives greater satisfaction than horse power, either attached to heavy wagon loads or to light buggies such as are conducted by ladies. The principle use we have for horses at the present time is for racing contests, and for table use, as we esteem the meat a great delicacy. The expense of maintaining a horse for labor far exceeds the expense of an electric motor, while the risk from sickness and death does not occur with the motor.

The influence of electricity on our farming occupation is exceedingly great. Every farmer has an electric plant in his house which connects with the whole establishment, and not only materially lightens the labor of the women, but assists in farm work in many particulars. In the house rooms are lighted by electricity doors and windows are opened and closed by pressing electric buttons; butter extractors are operated by electric power; an inverted brush-box with a handle, worked by a motor, is passed over the floor to sweep, requiring simply the guidance of hand power; dishwashing machines are run by the lightning-like fluid, and likewise the elevator in houses two stories high; all cooking is conducted in electric stoves; and all clothing is washed and ironed by simple, inexpensive machinery, run by electricity. As a result of this lightening of women's labors on the farm, while a century ago the larger per cent. of the women in our insane asylums were farmers' wives; to-day they form the smallest percentage of those from any walk in life. In fact, no ladies of America find greater enjoyment in their homes than do our farmers' wives.

On the farm electricity also serves many important purposes. Barn doors are operated by electric power; an electric fork conveys the hay and fodder from the wagon to the barn, and from mow to manger; automatic electric shovels clean out the manure troughs behind the cattle; the farm bell is rung by electricity; plows, mowing machines, hay tenders and rakes are operated by aid of electric motors; and all animals are slaughtered by means of electric connection. In the nineteenth century the experiment stations began to study the effects of electricity upon vegetable growth, and such progress has been made that to-day all our market gardeners grow vegetables under the influence of electricity. It has been demonstrated that electrically grown vegetables are of superior quality and tenderness, and that electric lights increase the capacity of crop growth. Further, lines of electric wires distributed through propagating pits, and even in fields on the farm, have greatly increased the yield and early maturity of crops, while destroying all fungus growth and insects adjacent to the wires.

Everybody possesses apparatus for spraying plants for the destruction of injurious insects and fungi, and he would be considered a singular farmer at the present day who neglected to use his insecticides and fungicides.

Injurious insects, however, are held in check, by many farmers, by the use of beneficial insects. On every well-regulated farm are small pens for breeding bene-

ficial insects. Enough of the food of the insect is grown to supply them with an abundance, and each farmer has an insectory of the size required by his fields and crops. The Hessian fly, chinch bug, Colorado potato beetle, and rose bug, are well held in check by the beneficial insects. Farmers propagating beneficial insects train them to come at the call of a whistle, so that the trained ones are easily collected in the field whenever desired. It is an amusing scene to watch a number of *Dodono hitata*, feeding on potato beetles, drop their prey and fly for the insectory at the call of the whistle. Their intelligence is marvelous. A special line of these beneficial insects may be purchased of large seed dealers and growers.

The care of our live-stock has been reduced to such a science that a seemingly maximum of profit is secured. Animals of all classes are fed on a scientific basis. Each farmer has an analytical machine, by which he can analyze his own feeding stuffs, fertilizers or soils, in a very few minutes. From time to time he analyzes

order to note any change in the character of the food. Each animal is carefully studied and fed according to the purpose in view, a certain number of pounds of albuminoids, carbohydrates, crude fibre, etc., as the case may be. Through investigation begun at several of our Experiment Stations, we are enabled to produce any class of flesh for food that we wish. By following directions of the Henri Prescription Book, one is enabled to deposit alternate layers of lean and fat upon the animal carcass, or entirely one or the other. Photographs of the effects of food upon the animal system, taken about 112 years ago, show that this work was then in its crudest stage. Through our knowledge of the effects of foods on the animal system, we are also enabled to secure nothing but pure cream from our cows if we see fit, or the reverse. Yet breed has been so influenced here by artificial conditions that the Jerseys of some breeders yield nothing but cream from very ordinary food, while the Holstein-Friesian cow, under average circumstances, will make many hogsheads of milk a year. In fact, cows of this breed oftentimes require slings beneath the udder to support its great weight.

Automatic milking machines are commonly used here now. By a special arrangement, a system of tubes with automatic pumps are connected with the teats, and these with a tube which passes back of the udder and connects with another tube, which conducts the milk to a butter extractor, where the butter is taken from it. The skim milk is carried by other pipes back to tanks in the mangers, where it is allotted to the cows as may be necessary, thus preventing all loss. This arrangement relieves the farmer of the worry of milking by hand a kicking cow, or one with small teats.

The animals are kept in barns where the temperature in winter is always constant, being regulated by electricity. None of our American cattle have horns, though two hundred years ago hornless cattle were uncommon.

In the Western States there used to be in the days of my grandfather, a great loss of corn fodder and straw every year, by allowing these valuable substances to be exposed to all kinds of weather, and be trampled under foot by stock, burned or thrown to waste. We now most carefully utilize these foods, by having silos for the preservation of corn fodder, when green, and by tearing the corn and wheat stems into shreds when dry, and feeding them with a grain ration. All such fodders are now carefully husbanded by us.

It is only quite recently—say for a hundred years—that Americans have exercised much care in the conservation of soil fertilizers. But the exhaustion of the soil was steadily impressed upon the people, and finally, after much earnest effort on the part of some of our Atlantic States' experiment stations, the attention of the people was drawn to this waste, and an active movement was begun to conserve our common farm fertilizers, and apply them scientifically, and also those commercially sold. All solid and liquid farm manure is carefully protected. The liquid manure is conducted from each animal to strong cement tanks below the stable. When one tank is filled the operation is repeated with another, and the filled one is chemically analyzed. Then this manure is applied to the field in specific quantity, there being a certain number of pounds of the food ingredients deposited to the acre. All fertilizers are used on this basis, and in buying commercial manures, the dealer dishes out so many pounds of nitrogen, potash, phosphoric acid, etc., per ton, according as the buyer desires. Perhaps one of the most important discoveries yet made by one of our stations is the method of producing root nodules on clover and other leguminous plants, which contain nitrogen. By a careful system of in-and-in breeding, we have produced a number of nodule-bearing varieties of clover and alfalfa that yield us great quantities of nitrogenous fertilizer. The roots, differing from those of ordinary varieties, grow near the surface, like potatoes. At the proper time of maturity the roots are plowed out, and the nodules, which are of good size, are uncovered, dried and ground, thus furnishing a most important source of nitrogen. In the older settled portions of our country, where plant fertility was early exhausted, the people found it necessary to study economy in the use of manures long before this was thought of in Western States, where the soils were deeper and contained more humus. Yet a change has come about, and now our entire farming population is well aware of the necessities of the case. In consequence of our excessive care and judicious use of manures, at the present time we gather an average of fifty bushels of wheat per acre, where we grew but twelve a century ago, and shell two hundred bushels of corn per acre, where we formerly harvested but forty. In the production of seed, we practice most careful breeding and selection. All of our farm vegetables and grains have been classified, botanically, as, by careful breeding, they have assumed certain fixed, definite characters. The farmer buys his seed from one catalogue, as all seed dealers use a duplicate of it, which is prepared by the National Experiment Station. If new plants are recorded in the catalogue, it is not until they are thoroughly tested by many experiment stations, and have been shown to be of fixed character, when their names are recorded in the classification by the Director-General of the National Station. This method has unquestionably saved the United States vast sums of money, for only desirable varieties of seeds and plants can now be bought in our market; the varieties are only of the best, and come true from seed.

On the same area of land, with a smaller number of plants, to-day we can grow a far larger crop than could be grown on the same land 100 years ago. The plants have been bred with such wisdom, and the soil fertilized with such care, that each plant develops its maximum growth. Our strawberries are of delightful flavor, and flesh, and color, and four or five average ones make a quart. The

seeds have all been eliminated from our cultivated raspberries, blackberries, currants and gooseberries. Their fruit is marvelously delicate in flavor, and especially so the two former. The size of the fruit of these is equal to the largest illustration given in the seed catalogue of our forefathers over one hundred years ago, at which time, according to the chronicles, it was said the figures were the concoction of a vivid imagination, equalled only by that of the tree-agent of the period.

In all the centuries man has discovered no more nutritious, staple food than milk, and so to-day our dairy interests, with our population of 500,000,000, are vast. And so much do our citizens value the importance of dairy products, that greatest care is exercised in their preparation for the market. Milk is sold in bottles, and each wagon carrying the same has marked upon its side the per cent. of solids and of fat the dealers' milk contains. No milk with less than 13 per cent. of solids and 3 per cent. of fat is sold from carts to the general public. All bottles containing milk for babies must have a guarantee upon it that it contains between 3 and 4 per cent. fat and 13 per cent. solids, and that the cow producing it was fed only sweet, dry hay, corn meal and bran. All butter sold in the market must contain at least 85 per cent. butter fat, and oleomargarine is sold only in pound lumps, colored pink with the letter "O" upon it. Such a thing as bad butter is not made in America, for all butter is made in the butter extractor, which does away with the necessity of the old churning process. Cream is obtained by running the milk through a centrifugal. Cheddar cheese is made from the whole milk only. At one time in our history, skim-milk cheese was largely manufactured, but such a thing is to-day unheard of, as it is generally recognized to be not easily digested. Limburger is at present our most popular form of cheese, and its easy digestibility, with its great strength, makes a combination hard to beat.

In their relation to the people the farmers of America occupy a high position. As our Constitution provides that the various industries shall be represented in our legislative halls according to the proportion of the people engaged in the separate ones, the farmers have a leading voice in the construction of our laws, and the social, moral and financial conditions resulting from their supervision and influence are eminently satisfactory, not only to the farming population, but to the body of our citizens as a whole.

The principal feature, as I have endeavored to show you, of the farming of this country lies in the application of scientific, economical and systematic methods to the conducting of our work. A farmer is not satisfied that a hen lays 100 eggs, of two ounces weight each, in one year, eating one bushel of grain to do the same. He rather aims to make that hen produce 365 eggs in one year, each weighing one-half pound, eating one-half bushel of grain to produce said eggs. And if one gram of albuminoids, or a part of a gram of carbohydrates is wasted, the farmer has been careless of his resources.

We do not feel that our agriculture has yet been developed to its utmost, but that it is rather in its infancy. As time shall move on, I firmly believe that grander and more splendid discoveries will be made in the fields of agriculture, such as shall be of inestimable benefit to the human race, through their practical application to farm economy. The end is not yet, and if there is any significance in the presence of hundreds of thousands of bright young men in our agricultural

colleges, it certainly indicates that these institutions are the seed-beds that shall develop minds consecrated to the advancement of agriculture, some of whom will astonish the world with such brilliant discoveries that I dare not conceive their magnificence. That most illustrious American, George Washington, in the early days of our history, said that "Agriculture is the grandest, the noblest, and the most useful employment of man." The full meaning of this utterance, history tells us, was not comprehended in the early days of our Republic, but to-day their significance is thoroughly appreciated, as shown by the testimony of hundreds of millions of our people.

Chair. Are there any remarks upon the paper just read?

Mr. Charles Howland. I feel that it would not be proper if we did not give a vote of thanks to Prof. Plumb for his fine address, although it is somewhat imaginative, as it was intended to be. I have been as astonished since my boyhood days at the great developments as you could be if the things which he mentions should happen. It is not improbable or impracticable that many of his ideas will be carried out in his own day, and I think it is due to the Professor that this convention give him a vote of thanks for setting out things in his interesting way—the possibilities and probabilities of these things—and I move you, Mr. President, that we do give the Professor a vote of thanks.

A rising vote of thanks was given.

Mr. Lockhart. I beg to make a statement briefly. Perhaps the most of you have noticed for quite a number of weeks (those reading the *Indiana Farmer* have done so) the articles written by different ones in regard to the formation of a farmers' reading circle. In the northern part of the State resolutions have been passed, and at three meetings in my district the votes have been taken, and I have been requested as a delegate, to ask the Board if they would appoint a committee referring to an organization of that kind. The originator of the scheme is Mr. Bartholomew, of Middlebury, Elkhart County, and since you have heard his name you will recognize it as being that of one of the brightest young men in our State. He says that he himself does not wish to take the initiatory in the formation of this organization. He wishes that it may have a head at the center of the State; but he thinks that it

should emanate from the State Board. Permit me to state further, that this organization is not to be taken into consideration with any other organization of the farmers in this State—the secret organizations, etc. It is to be something like the Chautauqua Circle. I have been asked to present it to you. I hope some steps may be taken to the furthering of this grand work for the farmers and their families. I wish to say that Prof. W. C. Latta is very much interested in the matter. I had forgotten about the fact, but I believe he wishes to speak about it. Professor Latta is very much interested in having the State Board of Agriculture take it up.

Chair. Would it not be well to leave the matter as it now is until after Professor Latta comes?

Mr. Lockhart. But I would like to have it discussed, if some gentleman will be kind enough to say something on the point.

Mr. Chas. Howland. I can not very well see how this thing can be discussed until there is something tangible before this body. I would move, therefore, that the Chair appoint a committee to formulate some plan, so that we could have it before us properly, and I would suggest that Mr. Latta, Mr. Lockhart and Mr. Connor constitute that committee.

Mr. Lockhart. I would like to have more added to the committee. I would like to have Senator Mount added to that committee, and some other gentleman.

Mr. Chas. Howland. Make it a committee of five.

Chair. I will add Mr. Howland and Senator Mount.

Nominations for membership resulted as follows:

5th District—V. K. OFFICER, Jefferson County.

6th District—DICK JONES, Bartholomew County, and W. W. HAMILTON, Decatur County.

7th District—E. H. PEED, Henry County, and MARION STEELE, Hancock County.

9th District—J. M. SANKEY, Vigo County.

10th District—JASPER N. DAVIDSON, Montgomery County.

11th District—MARC. J. CLAYPOOL, Delaware County, and LLOYD S. JONES, Huntington County.

12th District—JNO. M. BOGGS, Tippecanoe County.

13th District—W. A. MAZE, Tipton County, and B. F. CLEMANS, Wabash County.

After which the Board adjourned.

EVENING SESSION.

The Board met with President Banks in the chair.

Chair. As you are all aware we are here to first listen to Mr. Lockhart's paper on the feasibility of changing the Fair site. We will now listen to the address of Mr. R. M. Lockhart.

"SHALL THE STATE FAIR GROUNDS BE SOLD, AND NEW LOCATION SECURED?"

The subject assigned to me to present to you for consideration at this meeting is perhaps the most important one you will be called on to consider—"Shall the State Fair grounds be sold, and new location secured?" The history of the Indiana State Board of Agriculture from its inception in the year 1851 to the present date, is an interesting one to all those that have watched its rise and progress. But few men are now living who were on the stage of action at the time of its inception. There is at this time but five men living that were known to have taken a part in the organization of the first Board. It has numbered among its members many of the ablest farmers, manufacturers, professional and business men of the State, many of whom have passed away from earthly cares. But their good works live after them to help those that have followed them in after years. A comparison of the work done by the Indiana State Board of Agriculture with that of her sister States, will show her as standing in the front ranks in everything that has gone to make progress in developing every interest of the State. Her State Fairs have been model exhibitions, at which are annually showed the progress of the whole people of the State in stock raising, the cultivation of the cereal crops, in merchandising, mining, manufacturing and education.

In the first organization of the State Board of Agriculture, it was thought to be for its best interest that the State Fair should be migratory, consequently for a number of years the State Fairs were held but one year in each place where the Board decided to have them held.

After some years the Board decided that it would be for the best interests of the people of the entire State to have the State Fair permanently located at the capital of the State. The present location of the Fair grounds was selected as being the most suitable of anything offered, and was at that time far enough from the center of the city to seemingly preclude the possibility of ever being in the way of the extension of business or residence property. At the time the location

was made it was supposed by the Board of Managers that all needed facilities in the way of railroad transportation would be secured for all time to come. But after some years it was found that that portion of the city was to be occupied almost exclusively by family residences, and soon, by action of the city authorities, the railroad track to the State Fair grounds was condemned, and ordered to be removed from the streets and alleys which it crossed.

The Board did everything in its power to do to prevent this action, but failed to do so. The consequence has been that for the last twelve years the State Fairs have had no railroad facilities to bring the products of the farms or workshops closer to their grounds than the freight yards of the different roads that enter the city.

Neither have they had any better facilities for getting the people to and from the Fair grounds than that offered by the street railway company, which was, for many years, of the very worst character. And, while the same has been very greatly improved within the past three years, it is yet entirely inadequate to do the amount of business that is required during State Fair week, and which can never be adequate to the wants of the people. To those that are acquainted with our present grounds it is not necessary for me to attempt to give a description of the same; but as there are many who do not know the facts, permit me to say that the grounds contain fifty-six acres. As the grounds are now arranged, almost every inch of available space is occupied with the half-mile race track, exposition building, together with stabling and pens for horses, cattle, sheep, hogs and the various buildings that have been constructed by the larger manufacturing establishments of this and other States.

Owing to our limited space, the Board finds itself unable to comply with the increased demands for space upon which to construct additional buildings for the Board's own use for displays that they are expected to provide for, to say nothing of the demand that is being made on them by other manufacturers who wish to also erect buildings for the display of their manufactures.

From the foregoing statement, I think it is evident to every one that has any interest in the State Board's work, that the time has come when a change of location is demanded, where more room can be secured, which will enable the Board to more fully carry on the great and grand work that it was intended to accomplish by its organization.

With an acquaintance of the work of the State Board of Agriculture for the seventeen years that I have been honored with a place as a member of the Board, I think I am justified in the position I now take in saying to you that I am fully convinced that the time has fully come when the Board should take immediate action looking to a speedy change in the location of the State Fair Grounds.

Now a word as to the sale of the present grounds. It will be news to some of you when I say that I do not know of a single offer that has been made to our Board for the purchase of those grounds that can be called a legitimate offer. It is true that the question has been repeatedly asked: "How much money will the Board take for the grounds?" But I have no doubt when the Board is ready to offer the grounds for sale, there will be capitalists ready to take the grounds at a price and on terms that will be entirely satisfactory to the Board.

Now a few words as to the relocation of the State Fair. I have no particular location to recommend, as there are several tracts of land in near proximity to the city, North, South, East and West, of sufficient quantity that will enable the Board to secure a sufficient number of acres to meet the future wants of the Board for all time to come.

In seeking for a new location for the Fair, great care should be exercised in locating it on one or more of the leading lines of railroad, or on the Belt line, so as to secure the delivery of all stock and machinery on the grounds. It is a fact to-day that the cost to exhibitors at our Fair on stock and machinery that has to be drawn on wagons from the different freight yards to the Grounds does exceed, in many instances, the freight paid to draw the same 100 to 200 miles.

The direct conveyance of visitors from their homes to the Fair Grounds is a matter of vast importance to the management of the Fairs. So far as a change of location will affect the carrying of passengers by the Street Car Company, I take it for granted that the introduction of electricity in the propelling of the cars will enable them to arrange for the carrying of an unlimited number of passengers to any location within five miles of the center of the city, and wherever the Board may locate new grounds the Street Car Company will speedily arrange for carrying all passengers to the grounds. The grounds should be large enough not only for the holding of the State Fairs, conducted on the broadest conceivable scope, but also for other purposes.

The grounds should be ample for the construction of a mile race track, and also within the same a half-mile track. These tracks should be so constructed that no better ones could be found in this or any of our neighboring States. We have the material out of which such tracks can be made, and until such a step is taken by our Board, we will never succeed in securing the better class of race horses to compete for the prizes offered. I care not how much or how little money the Board offers, the fast-timers will not be allowed to compete on half-mile tracks, but a half-mile track is also necessary for the use of the youngsters which can not go on a full mile track.

I believe the construction of such a race-course by the State Board, together with ample provision for the seating of the people, will forever settle the question of the building of a separate race-course by any body of horsemen of this State.

There are many other suggestions that I might make, but I do not think it necessary to do so, and will add a few words on the propriety of coöperation on the part of the Board with the business men of this city. I am glad to know that the Commercial Club of this city stand ready to lend us a helping hand, well knowing that anything that will help the Board in making a successful location will also help the material prosperity not only of the city of Indianapolis but of the entire State. I look upon the carrying out of these plans of as much interest to the people of Indiana as will be the building of the Columbian Exposition at Chicago. Finally, I say I am in full favor of making sale of our present Fair Grounds and the speedy relocation of the Indiana State Fair.

DISCUSSION.

Mr. Merrifield. When this Board comes to re-locating its Fair grounds, it seems to me to be one of the most necessary things to be done to get all the land necessary for them, and that would have to be more than eighty acres. The question has been asked: How much will the land cost? I have it from men that have land to sell, that it can be bought for from \$300 to \$350 per acre. I think good land can be bought, suitably located, for from \$300 to \$350 an acre. When it comes to the selling of the old grounds there will be a hitch. I have no doubt that the capitalists of this city will try to make as much as possible out of this land. It is fair and legitimate, and, of course, they would do it. It is for this Board to say that it is worth so much, just as a merchant would put a price upon his wares; that they want so much for it, and they will get it. While I would speak only in the warmest terms of these capitalists, yet I feel that we must get what the land is worth, and that it should not be sold at a sacrifice.

Mr. Edward Hawkins, of the Commercial Club. The Commercial Club of this city has thought that perhaps there was not that hearty co-operation between the citizens of this city and the State Board of Agriculture that there should be. Some time ago, about the time the State Fair closed, I believe, action was taken in the Club looking to the appointment of a committee whose business it was to meet with this Board of Agriculture and to advise them of the position of the Club on this subject of co-operation. The committee (or a part of them, at least,) are here to-night, and I will say, as one of the members of that committee, that I am pleased to know that Mr. Lockhart, in his address, has taken up the same points and ideas that our Club has taken looking to the necessity of better feeling, on the part of both, and, if possible, a more hearty co-operation between the citizens and the State Board. We came here rather expecting to listen to the discussion of this subject from the members of the Board and the delegates present. None of us have made preparation to make a speech as to what

our ideas are, therefore, I will say that we will be glad at any time to meet with the Board, or any committee that they might appoint, and aid them in any way that we can to bring about a better feeling, and, if possible, bring about such a course, if it can be done, that it will be in "touch," as has been said, with the State Board of Agriculture. Col. Downing, a member of our committee, has been about St. Louis a great deal and has better ideas, probably, than any other member of the committee about broad gauge tracks and fair grounds.

Chair. We would be glad to hear from Col. Downing.

Col. Downing. Mr. President and gentlemen, I am not prepared to-night to say much on the subject under discussion, not thinking when I came here that I would be called upon to say anything. My experience and observation in the matter of a fair is, that no ground I have ever been on has been too large for the purpose. I believe that St. Louis has the largest grounds in any city in any State in this country. I think she has three hundred odd acres. She has a Zoölogical Garden, picknicing grounds, and a large area of ground set apart for the Mechanical Department, with power. The individual puts up the building he wants, and when anybody goes there and says he wants to see the surroundings, they take him out to the Fair Grounds and point it out to him with pride. I think that is what the citizens want to see here, and I believe we should have four hundred acres of ground for the purpose, and I think good ground—with a good location—can be got for from \$250 to \$300 an acre, and I think you would be able to sell the Fair Grounds here for from \$250,000 to \$300,000, and I want to say that we are ready to do anything we can to assist you, or advise with you, in selling or re-locating. I think that it is an important thing that in locating that you locate on one or more railroads, and on the Belt Railroad, if possible; and if you locate on any railroad, you certainly should locate so as to have tracks running by it or into it, and have trains run there—particularly passenger trains. It would be important that you have a good, fine drive running into it, in addition to the steam and electric roads running into it.

Mr. Lockhart. I would like to say something, if I can arouse our friends upon this matter. I think that in 1881 my brother and I went to Iowa, and the Fair Grounds to which we went were located west of the city, and there was complaint—always complaint. I attended one of their meetings and they had a talk, and the business men of the city were urging them to locate somewhere else, and make it on a broad scale, as they are now urging us here. What was the result? They came on this side of the city, and the business men pledged themselves that if the Board would go on the new location, that they would close all their places of business and go to the Fair; and that is being carried out; and if you know the Iowa men, you know they are the liveliest men in the fair business in the country. It has been intimated to me to-day, and I have been asked if these sharpers would not get it away from you. I want to say now that the State Board will not sign away a single acre of land until they have a fair and clear option. I have no interest in any real estate in the city, and do not know where this Fair will go. Our condition is a cramped one, and we can not go beyond our limit, if we continue to hold our Fair where we are. We must continue to put out money each year. We put down our dollars on grounds that do not afford us sufficient space for the purpose. Our grand old man, Mr. Nelson, who has labored with us for years, was recently attacked for not taking care of the stock that came there, and he labored and worried himself almost to death, for we hadn't the room to put the stock in. That was the reason. When we got the adjoining thirty acres I thought we would have room enough. I urged the necessity of getting these additional grounds, and I thought then that we would stay for some years. Our people built a horticultural hall last year to put the horticulturists and florists in. What was the result? When I got there, there was twice as much placed as there was room. As our Superintendent was obliged to say: "We haven't the room." I am not willing to give away a dollar's worth—not a dollar's worth. One man said that it wasn't worth more than \$150,000, and one said: "I know that it can be platted and

sold for \$600,000." I know that this is a great and growing city, but I do not think it is going to bring that much. It is our duty to make such provision as will enable the people from all over the State to come and see their exhibits in a proper way. We care not for the money if we can get grounds to accommodate our people as they should be accommodated. I do not know how you people from the city here feel in this matter, but I think there is a great deal of feeling, and I think that there are many of the best people of the city here who are willing to help us go on in the work, and make this the grandest Fair in the United States.

A Delegate. I will endorse the gentleman's paper—the place in it where he advises the removal of the Fair Grounds. I think the time has fully come when this State Board should no longer try to hold the State Fair in the present grounds, not only for the matter of getting more room, but as a convenience in getting to and from the ground with stock and machinery, and for the convenience of the people who go to see the exhibits. I think, from what I can learn, that a price can be got for the old Fair Grounds that will buy fully twice as much ground in another place and put the buildings and improvements on it; and I think the time has come to do this; and I heartily endorse that part of the paper relating to the removal.

Mr. Seward. I would say that I would endorse some parts of the paper just read by Mr. Lockhart, and some of it I do not. I believe that the time will come, and it will be a piece of financial policy that the Fair Grounds should be removed, but I do not believe that the time has yet come. One statement was made that some parties wanted to put up buildings there and the ground could not be obtained. If I understand it rightly, there is plenty of ground for buildings to be put up on. I have never heard any objection, particularly from the visitors or exhibitors to the location. It certainly suits the visitors very well, and the facilities for travel are being improved, and they have been improved so much lately that that

part is all right. There are a lot of real estate owners near the Fair Grounds who are convinced that if that ground was laid off into building lots and sold, it would enhance their property. I am in favor of moving it to another location. I have always said that the time would come that out of necessity that we should move; but that time will never come until we find ground suited to the purpose and we have funds enough to fix up the property. As Mr. Lockhart knows, no *bona fide* offer for the ground has been made. I believe there are those who would swap us a yellow dog for it, but when we sell we must sell for cash, and we must buy the same way. I think it is a great injury to the Fair to agitate this question when we are not able to carry it out, and the very men who have been arguing the question so strongly are the very lobbyists that want something they can't get. The only objection is that we haven't got a mile track. I like to see a horse race for a reasonable amount as well as anybody; but that is only an incidental point to the Fair. But if we have to buy an immense tract of ground just to meet that, and cut off the other exhibits, I am not willing to do that. Everybody likes horse racing, it is true. We have a half-mile track, and a good one, and we have all the facilities necessary to show everything that comes. We can make additional facilities there just as well as we can anywhere else; and in the course of time the State Board of Agriculture can sell these grounds—when they become so very valuable that we can no longer hold them—for a price that will enable us to fit up the best Fair Grounds in the United States. I think we are premature in the matter and should not talk about it.

Now, in regard to the Commercial Club of this city. Nothing pleases me better than the speech made by the gentleman, when he stated that they wanted to treat with the people of the State Board of Agriculture. But I want to say that the people of Indianapolis have not coöperated with the State Board people, and we have been designated by the people as "The rural roosters that got up the pumpkin show," and that name has been used toward us in derision. I know that we have always

felt that if the business men of the city of Indianapolis would coöperate with us, they could aid us and do us a great deal of good. I have been on this Board until I have, perhaps, got rusty; but there has never been a year when I have felt that we have had the proper coöperation of the business men of this city. One reason is, we went into the Exposition business several years ago (we were driven into the Exposition business by the people of Indianapolis), and were swamped to the extent of some eighty or ninety thousand dollars, and some of us had to go and put our little private paper in the banks, and we have been condemned for it. When that Exposition business was started, a guarantee fund was tendered to us by the city of Indianapolis. We never solicited a single man to subscribe. It was done by the citizens of Indianapolis themselves. They came to us, and we went into it in good faith. We went into it and made a great failure.

With the exception of one Fair Indiana has the greatest Fair held in the United States, and that is not a State Fair—that is the St. Louis Fair.

A Delegate. And they didn't beat us last year.

Mr. Seward, resuming. Then we have the best in the United States. I have heard it from visitors who have traveled, that it is the best in the United States, and yet the managers are old fogies, and don't know their business. That is the kind of encouragement the State Board has been getting. My hairs are getting so gray that I don't care anything about it. I want to cultivate the good feeling of the citizens toward us. I want to meet them half way. I don't think the time has come to make a removal of the Fair grounds. The time has not come because we can not sell it for what it is worth. In round numbers, the State Fair Grounds are worth a half million dollars, and whenever the State Board can get that amount of money for them, sell them by all means, and then we can get a ground for a mile track. Let some man come up and offer \$500,000, and you will find me the first man to come to time. It has increased in value every year about \$30,000—that is, \$30,000 a year. There

is not a patch of fifty-six acres in the State of Indiana—I mean unimproved ground—not a patch of that size in this State as valuable. It is the garden spot of this State. I suppose the city is not financially able to buy it for a park.

J. Q. A. Seig. In talking in regard to the relations that exist between the State Board of Agriculture and the city of Indianapolis, I would say that I am rather a new member of the Board. When I first came up I wondered why there was any feeling existing at all. I wondered why there wasn't that filial feeling that should exist between them. I found out that it was about that old Exposition transaction. I am one of those that believe in letting by-gones be by-gones. I do not believe in shaking up the old bones to make the ghost dance around our heads. I do believe that the time is now here, or near at hand, to consider this matter. It is impossible for us to say "down" to the ghost when he won't "down." In regard to the land advancing in price, perhaps other lands that we would want to use are advancing also. We have to take this thing into consideration. The gentleman reminded me of a boy up at Georgetown. The minister said to the congregation: "All who want to go to Heaven, stand up," and all stood up but the little boy, and the preacher said: "Johnny, don't you want to go Heaven?" and he said: "No, sir; Georgetown is good enough for me." I believe Indiana is good enough for me, but the time has come to look this matter in the face. It is only a business matter with the Board—only a financial question. Unless we go out to find a buyer we will never sell it. I never sold a horse unless I went to the market and hunted for a buyer. I am a young member of the Board. I don't mean young this way (indicating), I don't mean in years. I am no spring chicken. We never will succeed unless we go out and work, and we will never build a community up unless we pull up ourselves and get to work. They accuse me at home of letting my wife do the work. But it is a question of whether we can make this change in the interest of the Board—make it a financial interest to us. The law should be amended touching the amount of

land the State Board can own. We should take hold of this matter like men, and we should not sit back and say we won't do our duty. This land belongs to the State of Indiana. I am not in favor of fooling one dollar of it away. We ought to buy our land and put the buildings on it, and I am convinced that the citizens of Indianapolis are ready to help us in building up the city of Indianapolis. I want to say to the citizens here that the people that come from my county come up here and buy hundreds of dollars worth of goods every year. They come up here, I say, from Harrison County, and buy hundreds of dollars worth of goods every year. We ought not to look this ghost in the face any longer—we ought to down the old fellow.

Mr. Robert Mitchell. I guess everything has been said that is necessary in regard to the moving of the grounds, and I am one of those that wanted to hear from some of the delegates. I know that everything has been said that can be said. I think we ought to make the best sale we can. We could not feel justified in sacrificing the ground. It will take all this ground will bring to set us up on a new ground and set things in motion. The Board is in debt, and that is the thing to be considered. There is no money to buy new grounds. To do that we must sell these. We can not sell unless we look for buyers. If we can secure a site where we can get good railroad facilities, I think it is the duty of the Board to go there. That is all I have to say upon the subject.

J. B. Davis, Hamilton County. So far as I have been able to learn, we are heartily in favor of selling the old Fair Ground and re-locating where we can have ample ground for locating a new Fair Ground that will be an honor to the State and to the Nation.

James H. Vajen, Indianapolis. I have very little to say on the subject. I have listened to the arguments of these gentlemen, and I think they are all very proper and right in their place; but I think we are a little too fast in this matter. Still, it is, as I have said, very well to discuss it. The question is now, What ought first to be done? I think the State Board

ought first to agree among themselves to dispose of this ground, and when that is done, then have a law enacted to allow them to purchase more than eighty acres. Then they ought to establish a price on the ground, or obtain buyers for the old Fair Ground, so that they may know how much is offered for it. Then they should purchase options on other land. Then they will soon find out whether they will receive enough to purchase other grounds and put buildings upon them. This talk is, of course, at random—only an exchange of views. I suppose in time a committee will be appointed to make an inspection with a view to making a selection. I am very much pleased to hear the views of the gentlemen in regard to establishing a first-class Fair Ground. A city that is growing like Indianapolis here—and it is here to stay—and when such beautiful improvements as we have here in this city have been made, we ought certainly to have a Fair Ground in proportion—in keeping with these other improvements. From year to year we require better buildings. We ought to have permanent buildings, and they cost money. To place these buildings on grounds that have to be sold from time to time costs money, and it is a loss, as we, perhaps, have none that can be removed to other grounds. For this reason we ought to get ground where they can remain for all time. I was pleased to hear the speech touching on St. Louis. We can also have a zoölogical garden and park, where people can enjoy themselves. And, of course, they ought to have a mile track. I think the first thing for the Agricultural Board is to agree upon selling this ground and to invite propositions for bids, and then to obtain other grounds, and then to have the law changed by the Legislature.

Mr. Stevens. I am a good deal in the shape of the fellow who addressed a Sunday School class. He cried, and a little boy in the class wanted to know why he cried, and he was given this answer: "If you didn't know more than that fellow about the matter, and had to make a speech, you would have cried, too." It is evident that there is not room enough out there for the growing wants of the agricultural people of Indi-

ana, and it is a business proposition that every dollar spent there is dollars spent to their advantage. There is another side of this proposition. There are agriculturists, the manufacturers of agricultural implements and floral interests that are hesitating what to do—men who want to build permanent buildings, who are hesitating until we make up our minds. You know that when a body like this wants to buy a plat of ground it increases in value like a mushroom on a June night. Haven't you heard of such things? There never was a better opportunity to see what can be done, for this Legislature, which meets in a few days, will do the proper thing if we go at them in the right shape. I think we can get 160 acres, but under the present statutes I do not think we can do anything—I do not see how we can. We should appoint a committee to go before this Legislature and see if they will not make a change in the law.

John R. Elder, Indianapolis. Mr. President, I am not a speaker. I am merely a looker on; but I have taken a great deal of interest in the turn this matter has taken. I think Mr. Vajen and the gentleman who just sat down have stated the thing in a nut-shell. You are not ready to sell. When you are ready to put it into the market, then you can sell. The first thing you want to do is to get the Legislature to allow you to increase the size of your ground, and I think the best thing to do is to appoint a committee to wait on the Legislature, get authority to buy and own additional ground, then find out what you can get for this. See if you can not get enough for this ground to buy the ground and put all the improvements upon it. First get authority to act. As far as my opinion goes, I believe you haven't ground enough. There are other interests than the horticultural and agricultural. The racing interest is one of the great features of a Fair. You go out there to our own Fair and you will always see the people at the race track. That attraction alone brings a good many visitors. You want more ground. This ground, of course, will increase in value, and so might other ground.

When you find out what you can get for your ground, and if you can't get enough to place you in good shape on the other ground, don't sell.

Mr. Johnson, Irvington. I think there can be no question on this matter of legislation. I have had some talk with Representatives of this county, and they say they think there will be no trouble in getting an amendment such as we want. There is another question to be determined in connection with this matter. The question is: Do you want to specify the number of acres that you want? Just strike that out—the eighty—and let it be indefinite, and let the State Board purchase what ground it wants. One of the Representatives of this county said he would interest himself in the matter and introduce a bill on the first day if they requested it, and no doubt it would go through.

Mr. Charles Howland, Indianapolis. My own opinion is that this is a very opportune time to move in this matter. You have a Delegate Board here, and the State Board is expected to be governed and guided somewhat by the Delegate Board, coming, as they do, from the people, and I want to hear from this Delegate Board; I want them to vote on it in connection with the other Board. I want to know just whether this Board is in favor of disposing of that ground or not. I know something about this State Fair business. I have had to do with it for some time, and I know that you can run a State or County Fair successfully, but I do not know that Mr. Seward has the right to claim that they (the State Board) have made this great show what it is in Indiana. It is the get-up-and-get people of the State that does it. I don't care whether it is the "rural roosters," or what they are called. If you give us the place to show, we will show. I have no fault to find with the State Board of Indiana, but I have fault to find with the grounds—they are not big enough to meet the demands of the great State of Indiana. It is located in a pleasant and very lovely spot, as you have stated, but the great city of Indianapolis has grown clear around it. On the other side it has become an eye-sore to many citizens who live there, who have to

pass by there, as they have to go a half mile out of their way to get home. If we had to do this we would have a little hard feeling ourselves, and we could not then have that fellow-feeling that you want, and which is necessary. While the citizens are proud of a big Fair, it has got in the way of progress here, and, secondly, the citizens of Indianapolis will get down on it, and that is not good for the Fair, either. I think the better plan is that we all agree about the thing touching our great Fair—the boss Fair of the United States—and remove the thing which stands in our way. The going out of corporation limits is nothing nowadays. It is not like what it used to be, when we had to go by the old farm wagons. We now go by lightning speed, and I can see no good reason, but every bad reason, for remaining where we are. You may as well commence to-day to do something as in five years from now. Of course, if you are not going to sell it, and if this Delegate Board says that they don't want to sell it, don't do it. If you want to sell it, sell it, and if you don't want to sell it, don't sell it, and say no more about it. If you want to get something through the Legislature, you can do anything you want that they consider to the interest of the people of the State. There is no doubt you can do it.

Mr. Seward. Indulge me just a moment more. On the very point I have taken my stand in this matter, Mr. Howland has let the cat out of the bag. He says the city has grown up and around the Fair Ground until it has got to be an eye-sore to them, and gentlemen, that is the secret of the great objection to the present Fair Ground. The Fair Ground was at one time two miles out of the city, but now it is entirely surrounded by the city, and those gentlemen who live up there don't like it, and Mr. Howland don't like it. I think if I was like him I would not like it either. It is not inadequate; it is plenty large enough, except for the mile track question.

Mr. Ogle, of Delaware County. I have listened to the discussion of this question, and that closely. I am comparatively a stranger, but I see that there is not that coöperation from the delegates here that I would like to see and hear. I think there

is a reason for it. You men who have been running this Fair for years have got your pieces by heart, while us little fellows are embarrassed. I have my ideas. I have had some experience in the fair business. I would like to ask you how many people in the State of Indiana, who visit our fair as a visitor or exhibitor, will say that our Fair Grounds are large enough? Will you find a lady to say that we are not crowded? The machine men that go there to make their exhibits at a large cost are cramped there to a little space of sixteen feet to set up an engine, a traction engine, a straw stacker and a tent. It is the get-up-and-get, as one gentleman has remarked, that makes our fairs. I would like to have a vote from the exhibitors as to whether the Fair Grounds are big enough. Another thing I wish to speak of. I have come to this city with machinery and men, and have had to pay out \$25 of my employer's money to get on the ground. If we employ your expressmen here to haul us out, they would say: "Oh, it don't cost you anything." If you fire up your engine and run it out there, as I have done, the first thing you have to do is to go to your Chief of Police and get license to go out there. (Laughter.) Once I came up your streets with a traction engine, and, bless your life, I got in one of your gas ditches and I ran against a man in a buggy, and we upset him, and he was drunk. My son was running the engine, and when it occurred, I said, "Wait we are getting into trouble." I say the man was drunk and fell into the ditch, and the first thing I knew a policeman came up, and when he learned the circumstances he picked the fellow up and said: "It served you right; he ought to have run it right over you." (Laughter.)

Talking about St. Louis. When you go to St. Louis, the first thing they say to you is: "How much space do you want?" And I say: "I have an engine, a straw-stacker and a traction engine," and we say that we have come here at a good deal of expense, and they say: "All right, drive your pins, we have got the space for you." It makes a fellow feel good. But, when they come to Indianapolis, you put them down on their little sixteen feet. (Laughter.)

The idea has been advanced in this discussion that we must hold that land because it increases in value from year to year. Is this not true of all land about the city? Did you ever go over to Columbus to the fair? They send you out there in a few minutes by steam, and it costs you ten cents. They don't run you through peoples' houses and lots over there in getting to the Fair Ground. (Laughter.) I am not surprised and do not blame the citizens for saying it is an eye-sore. We can take the county of Marion and it will pay a big debt; the State will pay a big debt, and the United States will pay anything. (Laughter.) If we don't show this land and try to sell it, we can never do it. I have got one of the finest horses in the world, but nobody knows that I want to sell him; and I never would get a buyer if they thought I didn't want to sell him. Mr. Lockhart is not going to give this land away—not a dollar's worth of it. It is in the safest kind of keeping. No, gentlemen, they will not squander your Fair Ground. The time has come, and the first thing for you to decide upon is whether the Fair Grounds are big enough. Has the State Fair of Indiana outgrown this little patch of ground up here? Up at little Muncie town we have got as much as you have here, and we haven't enough ground. Talk about sticking the great State Fair on fifty acres of ground! I am for anything that will better our condition, teeth and toe-nails. I don't want Ohio to say: "We have a big Fair Ground, but Indiana is cramped up;" and have exhibitors come here and say we have no space. It is humiliating.

The first question is: Are we ready to sell? Are our grounds big enough? If they are not, we want to sell them. We don't want to smother the State Fair till we smother it to death. The next thing for us to do is to say that our eighty acres do not afford us room for the purpose. Let us see what can be gotten for the ground we have, and if we don't get enough to buy what we want, get a little money and owe it; and I say to you, gentlemen, that the good people of the State of Indiana will help you out in the matter. I know that up at Muncie we were in debt, and the people stayed away—and kept

away and tried to freeze us out—but we wouldn't freeze. We stuck to it like good fellows. We were swamped in debt, everybody was against us, and I went through that fair ground feeling that I could shed tears. We stayed there, and we got out of debt; we got out of the swamp; and, as Judge Buckles could tell you, we pulled right out by grit; and now everybody is glad when our fair comes around, and we all have a joyful time; and we will see the time that we will have the second fair in the State. I think we have the finest fair grounds in the State. We have a good Board of business men; we have energetic men, and we are flying.

Mr. Davidson. I am very much pleased with Friend Ogle's remarks; but it will be remembered that he is from a gas town. I don't know, Mr. Ogle, whether I will let you say that you have the finest fair ground in the State outside of this city. I was looking around for our friend, the Senator, here, who will explain to you about this bill that goes before the Legislature. I will tell you how that Committee on Legislation came up. We have agreed on an amendment in regard to the ground question that will cause as little friction as possible, for I fear that some of the Legislators will think that we are asking them for \$10,000 again, and you should ask each of your Representatives to do what they can in the matter. If we must buy 250 acres, all right. Mr. Ogle speaks about his ground at Muncie. I say we occupy at our city fifty-four acres of ground, and we use every rod of it, and frequently 25,000 people come; we charge twenty-five cents. The railroads take the people to our Fair. We purchased our land lying right between two railroads—the Vandalia on the east and the Monon on the west; and we also have another road that is not quite so convenient. We want to go on some of the prominent railroads; we don't want to count too much on the Belt Railroad. The first step in this matter will be to get the Legislature to allow us to own more ground, and I think this question could be got through the influence of this Delegate Board and the Commercial Club; and I want to thank the chairman of that Board for sending the names of this visiting delegation. I answered

that letter. I took it upon myself to do so. We want to meet them half way. As far as the time for moving this Fair is concerned, I do not know. It is a question of money. If we had money enough we could move very early, and easily. It is well known by this Delegate Board that we owe a debt—in fact, several debts; and they must be paid. There is no question about it; we don't want to incur any debt. When we settle again, we don't want to re-mortgage our land; we want it clear. We don't want to ask any more money from the Legislature, either. I think it is only a question of time when this change will have to be made, as has been stated. I want every one here to use his influence in getting the measure through. I don't want to create any excitement; but I think it is the thing to do, to have them allow us to own more land. It is time that we were looking after this feature, at least.

Judge Buckles. I am not a member of the State Board, nor am I properly a member of the Delegate Board. I am here as a kind of looker-on. I feel an interest in this question. As has been suggested by other gentlemen, it occurred to me that it is a matter of vital importance that we should make provision to accommodate the citizens of Indiana at the State Fair, a thing that has not yet been done. I haven't been an exhibitor to any great extent, but I have been a visitor to a considerable extent. I think I know what the trouble is, and I say what it is when I say that that ground is not large enough. If it was large enough at any time, the great State of Indiana has outgrown it. As Mr. Ogle stated, we have as much ground, perhaps, as you have here, for our County Fair. But I remember the cursing we got for getting so much ground. Some days ago I met an old gentleman who used to curse and swear about the large amount of ground, and I made mention of the fact, and said: "It is terrible that so much ground has been squandered," and he said: "What an infernal memory you have got; don't you never forget anything?" (Laughter.) I think the State Fair Ground should have at least three hundred acres in it. To properly accommodate her people it will

require this amount of ground. Why should they be put in there like a drove of hogs when they come to this city to visit the Fair and see the great productions of the State of Indiana? The idea that it is large enough is ridiculous, when it requires almost that amount of ground to accommodate a little country Fair. I am sick of complaints I hear—complaints about the size of the ground. This matter has not been properly agitated; it has not been taken hold of as it should have been. As to the time, gentlemen, I would say the earliest possible moment. You are not making a sacrifice when you accommodate the agricultural interest of the State of Indiana. I would leave that to the members of the State Board of Agriculture. It is in safe hands. We can not say just when it ought to be done. Circumstances may change matters before our meeting is over. But we should do something. The first thing is to bring it to the attention of the Legislature. Let the Legislature know that the farmers of Indiana, as represented by the State Board and the delegation now present, that the thing should be done; that the farmers, the stock men and the business men of Indiana demand that it be done. It won't take long. It is not a Democratic or Republican question. Demand it, and tell them that it must be done, and it will be done. My judgment as a citizen and tax-payer of the State of Indiana is that we will not be satisfied with what we now have. If we can not do any better, sell, and look some place else for better grounds. If you can't find the ground, come to Delaware County, and we will give you all you want, cheap, and plenty of gas to run it.

Col. W. T. Dennis. Mr. President and gentlemen: It has been thirty years since I have been present at a meeting of the State Board of Agriculture. Previous to that time there was never a meeting that I did not attend. I was present when it was born. I was the first Superintendent of the first Fair held at the old Fair Grounds at the elbow of the canal up here. When they came to the Fair in those days they led their stock and brought their machines by horses. There was but one railroad—the old Madison road—but there wasn't much use for

that, as there weren't many people to come. I remember I worked so hard to get organized and inaugurated, and I assure you, gentlemen, that no other human being ever had such a task on hand as I did when I started that first State Fair. Mr. Dillon was Secretary of the Fair, and he had no idea as to the details of the work. I was made the General Superintendent, with unlimited power. I went right ahead and made the buildings and stalls, took hold of the wheels with my shoulders and did whatever else was necessary to make it a go. I went ahead and attended to the printing; advertised with bills printed in big letters. I said: "Indiana at the Head of the World." And I say that yet. Well, when the Fair opened up, I remember a young man came in leading a bull. He seemed somewhat embarrassed; but finally he said: "Where will I put him?" I said, "You go down and put him in number ten"—that is, in stall number ten. Well, he went down to the little row of stalls, and when he got there he was so excited—the thing was so new to him—that he didn't know whether to tie himself in the stall and turn the bull loose, or tie the bull and turn himself loose. This reminds me of a little circumstance that comes in in connection with this Fair. In 1849, in the Indiana State Senate, D. P. Holloway, of Wayne, introduced a resolution and a bill for the establishment of a State Board of Agriculture. George W. Brown, of Shelby, a member of the Senate, was chairman of the Committee on Agriculture, to whom the bill was referred. In consultation with Governor Wright they came to the conclusion that it wasn't good policy to introduce any such measure at this time, and things remained in this condition for some time, when Mr. Holloway arranged with Mr. Brown that if he would report the bill, and if it was passed, he should be the member from that District, and to assure Governor Wright that he should be made President of the Board. This proposition had the desired effect, and there was an opening at once, and he said he now saw himself perfectly clear. Governor Wright was made the President of the Board, according to agreement.

Gentlemen, I was present when the State Board of Agriculture was born, and I am one of the four or five living members referred to by Mr. Lockhart. I have seen it from its infancy to this period of its growth. I visit it occasionally. For the first ten years of its existence I was Superintendent or Secretary. I was a member of the Board until 1860, when I was transferred to Washington to the Patent Office. I then lost my connection with the Board.

Now, about this ground question. I can tell you something about this ground out here that you don't know. The first Fair was held here in Indianapolis, then the next at Terre Haute, and then the next at Madison. The folks got tired of running around from one place to another. I suggested to Jonathan W. Gordon that some way could, perhaps, be found or thought out by which to raise money to buy ground here and make it permanent; and he said: "Well, what is your plan?" I said: "Let us go and see the railway presidents of the different roads and have them agree to pay us so much for every year the Fair is held in Indianapolis, and when it is not held they are not to pay us anything. He thought the scheme a pretty good one. Well, we bought thirty-six acres of old Van Oday, and the railroads paid every dollar of it, and the fact is, that ground out there never cost the people of the State a cent. The railroads paid for it. The time used to be when you threshed with the flail, then you progressed to the threshing machine. The time was when you cut your grain with a scythe. Now you have a self-binder. The time was when that ground out there was large enough. It is the same as with the old methods you had for cutting and threshing your grain. They were good enough then, but they won't do now. They are no more suited to the growth of this great State than are the flail and scythe to the farmer of to-day. Talk about displaying the agricultural interests and products of the State of Indiana out there on that little patch! As well try to dip the sea dry with a teaspoon. It is not in the nature of things that it should be so. Down in Wayne County we have a new Fair Ground: We don't want to be pinched, either; we have

140 acres, and we haven't an acre too much. You will have no trouble to sell your grounds if you will let the people know that they are for sale. I think this should be done. I am satisfied that you have the elements in your make-up to make one of the best Fair Grounds on this great foot-stool. I know that Indiana could have a better Fair than St. Louis. We want to get out of this shell, that is not large enough to hold us. Some of our friends think the shell is big enough, but I don't think so.

Marion Steele, Hancock County. Mr. President, I rise to make a motion to the effect that the Delegate Board here vote to reinstruct the State Board to sell the Fair Grounds. I am heartily in favor of a change, and I feel the need of it.

Mr. Mitchell. I should now like to introduce the resolution which I made an effort to read a moment ago:

Resolved, That it is the sense of this meeting that the State Board of Agriculture sell the present State Fair Grounds whenever a sum sufficient is offered as will justify the Board in making such sale; and

Be it further resolved, That the President appoint a committee to secure such legislation as will enable the Board to increase its holdings to such an extent as will meet the wants of the State Fair.

The resolution was unanimously adopted.

Chair. Yes, sir. I wish to state that we had a meeting of the Executive Committee and this matter was informally considered, and we expected to bring it up properly before the meeting; but now we are given to believe that we shall have no trouble in getting it through the Legislature, and I shall, in making up this committee, name the same members that were on before—Messrs. Clemans, Davidson and Nelson.

Mr. W. W. Stevens. I would suggest that every delegate here see his Representative to-morrow, or before we go away from here, and request them to consider this matter, and I think it will go through quietly and all right. The most of the Representatives are here, and we can see them all, and simply have it quietly attended to before we go away from here.

Chair. I feel very much gratified at this meeting to-night. It has been harmonious. I think the time has now come for

us to make that change. I think we can make it better now than afterwards, for we will have to put on more improvements every year. So far as I am concerned, I am ready to go ahead at once.

Mr. Mitchell. I move that Mr. W. T. Dennis be constituted an honorary member of this Board during his life.

J. C. Stevens, of Wayne. As the representative of Wayne County it gives me pleasure to second that motion. We know Col. Dennis, and know that he has devoted the flower of his life in building up the work of the State Board.

The motion prevailed.

Col. Dennis. This simply goes to verify the old saying: "That bread cast upon the waters will return after many days." I thank you, gentlemen.

Adjourned to meet at 8:30 o'clock A. M.

JANUARY 7, 8:30 o'clock A. M.

Meeting called to order promptly by President Banks.

The minutes of Tuesday's meeting were read by the Secretary.

Mr. Lowry, of Hendricks County. It struck me very forcibly last year, and when the old gentleman, Mr. Dennis, was elected as an honorary member, that it would only be a short time until all the old landmarks would pass away, and as we have no history of the first ten years of this Association, I think it would be well to have him write one, and, therefore, I move you that Hon. W. T. Dennis be requested to write up a short history of the first ten years of this Association.

The motion was carried unanimously.

Mr. Stevens. I know that Col. Dennis is not very well. He is old and getting very feeble, and if we want that history we should get it at once. We ought to have a committee to formulate a plan.

A Delegate. I move that Mr. Stevens be appointed a special committee to notify Mr. Dennis of this request.

Carried.

Chair. The first paper on the programme is that of Prof. Latta, of Purdue University. I do not think it is necessary for me to introduce to you Prof. Latta. I do not think there is a man in this house but knows of his work, and he will now give you a further history of it.

Prof. Latta. It is due this body that I should have prepared a briefly written statement to present at this meeting, but because of the constant pressure of work and owing to illness, which kept me in bed for two days recently, and leaves me now somewhat indisposed, I must ask your indulgence. The fact that last March, at the round-up institute, I made a brief report of the work that had been completed, and the further fact that the work has been conducted during the present season on the same plan as last year, would make it unnecessary for me to make an extended report at this time. I might say further that many of you here to-day are familiar with the work as it has been conducted, as many of you have taken an active interest in the work yourselves. I will state, for the benefit of those counties yet to hold institutes, that one of the difficulties we have most frequently met with is that of getting our friends to form an adequate idea of the work that is to be undertaken in these farmers' institutes. It seems easy to get four wrong impressions of the nature and intent of the institute work to one right impression, and, hence, for the sake of the counties, especially for the counties yet to hold their institutes, and of which delegates are here to-day, I crave your indulgence for a few minutes.

As to the general plan of the work, the aim has been to first utilize, as far as possible, existing organizations—the County Agricultural Societies—first the State Board, and then the County Agricultural Societies, and only when I have failed to get a response from a County Agricultural Society have I enlisted that of any other in this work. I have only coöperated with the Alliance when I had failed to enlist the coöperation of the County Agricultural Societies. I believe in the work, and I believe the work should be conducted under the auspices of these County Societies. I believe that has

been the idea of Mr. Mitchell, a very prominent worker. He has been with me in the work as much, or more, than any other member of the Board, and it has been his idea that the societies should take hold of this work fully. These societies haven't political affiliations. They represent all the better interests of the farmers of the State as no other farmer organization can, and it is only natural that they should have something to do with the work. The work is in the interest of every one in the county, whether they live in town or in the country, whether engaged in mercantile or agricultural pursuits. The letter of the law will be observed in one respect at least, in holding an institute in every county in the State, and that is what the law contemplates, and this will be carried out, with, possibly, one exception—that is hanging in the balance—and with that one exception institutes will be held in every county in the State. Institutes have already been held in 72 counties, and there are still 19 in which they are to be held, ranging from 100 to 1,000. Why, we haven't had half one thousand at any one of the institutes this year. I find that a fair average estimate of the number of different persons attending these institutes would be, on an average, two hundred and fifty persons at some one or more of the different sessions.

As was stated before, the aim has been to so conduct these institutes as to further the interests primarily of the farmers; and, secondly, and incidentally, to further all industries and material interests in the county, to pave the way for better methods and higher results. As to the results, I must say there has been a commendable interest in every meeting that I have attended, and I have attended all of the 73, and all but the last two being held simultaneously. There has been a uniform endorsement of all, except one. Mr. Sankey can probably tell about that. I can not. I refer to the last meeting held in Clay County, and there has been a hearty, and, practically, unanimous endorsement. In a very few instances an objection has been raised like this: That it was in the nature of class legislation, and should be opposed. But the generality of the

farmers have not held it as class legislation, and the citizens of the towns have given it their endorsement and have shown how they regard it. Although the State law does not require the counties to permanently organize, so many of them have appreciated the work so much as to effect permanent organizations to carry on the work in the future. A number of these counties that have formed associations have held very successful meetings, and will continue to do so. The fact that the General Assembly has done something toward assisting them has encouraged them, although the law does not make it obligatory upon them to attend. I desire to emphasize the fact that these institutes are not held in the interest of the Alliance or the Grange, or in the interest of the Mutual Benefit Association, or any special party, or sect, or class, but solely in the interests of the farmers of the county. They are held to further the interests of all in the county, and they have had the hearty co-operation of the members of all these organizations, and, too, of men who do not belong to any organization. I want to state that plainly and emphatically, to correct the impression that is current in a great many localities over the State. There is some misunderstanding as to the nature of the thing, and I am often asked: "Are you going to form this organization for any political purpose?" The impression seems to obtain that when you form an organization of any sort it is for political purposes. I want to remove this mistaken impression, so that it may not come up in the twenty counties remaining that are to hold institutes. There seems but one question, from our experience in the seventy-two counties in which institutes have been held, and that is: Shall we continue the institute work in the future. These counties have endorsed its action and have asked a continuation of the good work, and that, too, in almost entire unanimity. If the work is to continue, then the question is, how shall we arrange that it may be done in the most efficient manner? This is not a proper time or place to submit in detail plans, but I shall drop a few suggestions to this effect: I think we may get a hint from the action of the last General Assembly as to how this work should

be continued in the future. An appropriation quite inadequate to cover the expenses of the work was made the people, but the people of the State had seen fit to supplement that meagre fund, and through the joint efforts of our law-makers and the citizens of the State the work has been pushed forward. It is my deliberate judgment that when we shall have completed this first canvass of the State, and held an institute in each and every county, that there will have been expended not less than \$12,000. The State appropriated \$5,000 for the two years for holding an institute in each county in the State. The money has been expended by the authority of the members of the University, partly, and largely by the people of the State. I think we may take a hint from this. I say they should make an appropriation insufficient to cover the whole matter, but they should encourage the institutes, and farmers and other workers to carry on the work in the future. In Wisconsin they expend annually \$12,000 on this work, holding on an average 75 institutes. I believe that it would be unwise to make such an appropriation in this State. I think it would savor of extravagance. I think only such an appropriation should be made as would enable us to hold one institute in each county in the State, and I think only a sufficient amount should be appropriated to encourage the work, and let the local organizations take hold of the work and carry it out. I learn by correspondence that in neither Ohio, nor Wisconsin, nor Michigan, nor Kansas (and these are all the leading States in Institute work in the Mississippi Valley) is this local expense met by appropriation. The expenses incurred for halls, music, local speakers, printing and programmes—all these expenses—are met by the local workers in the counties, excepting in Ohio, where they raise it by a tax of one-half cent per capita. In the other States there has been no appropriation for meeting this local expense, and it is my judgment that if a State appropriation is to be made in the future that it should be simply for the expenses of the central office, and such speakers as would be necessary to properly do the work. This is merely a suggestion. The reason for that suggestion is simply this :

If the State would undertake to provide not simply two or three speakers at each institute, but the local expenses as well, there would, in time, be no end to these expenses. The price of halls would go up, the price of advertising would go up, and I think it would prove to be uneconomical and unwise.

I would be glad to answer any questions that the members might care to ask, yet I appreciate that the time is short, and in making these remarks I merely desired to drop a few thoughts, having, as I explained in the beginning, reasons for not being able to make a report; but, I would add, the scope of the report this year would have been the same as that of last year.

DISCUSSION.

Chair. Any remarks on the suggestions made, by Prof. Latta? It seems that it is very desirable that this thing should be pretty fully discussed, but the time flies and our programme is pretty long. Delegates may express themselves as to their wishes in the matter, whether they would rather pass on to the coming papers or give some time now to the discussion of this important question.

Mr. Chas. Howland. I think the idea of forming these various organizations, either agricultural or horticultural, is a work of vast importance. We all know how this thing is in all matters that we undertake. The more you enlist in support of a work of a certain kind, the better the work goes on. It is this that brings success into a religious body. You will have noticed that that organization succeeds best that enlists the greatest number in the work. Therefore, if you enlist the various agricultural and horticultural organizations of the State, you have a help and power that you can not attain in any other way, and I heartily endorse that part of his recommendation, and it should be brought up and formulated in such a way that we should feel that it is obligatory upon these various organizations that they encourage and take hold of this work.

A Delegate. Prof. Latta did not say what amount we should have appropriated for this work. I believe with him, that we ought to be economical, and that we should not have too much at our disposal. When we get a big appropriation we will want to spend too much, and our speakers will all want big salaries—they would feel that the State was footing the bill. I think \$5,000 would be enough—just enough to pay the speakers. We have had a number of volunteers during the past year, and I think \$5,000 annually appropriated would be enough to carry on this work in the best possible way. Of course, \$5,000 for two years is not enough; \$10,000, I think, would make it so that we would have too many salaried speakers, and there would be a falling off in the local interest. I would like to hear Prof. Latta on that point.

Prof. Latta. I will say just a word on that point. It is only my judgment—an impression of my own. One fact I think we need to take into account in regard to this work in the future, and which has not embarrassed us up to this time. The work, as you know, has been new throughout the different counties in the State. It is a new and novel thing. We have had a large corps of workers that have engaged in the work, but they may have engaged in it, or, at least some of them, because it was new and novel, but how long that coöperation will be with us I can not tell. I think, however, that the time will come when we will not be able to get as able a corps of workers as we have had during the past year without any charge for their services. I think they will ask some little per diem. We have had some two hundred persons—perhaps two hundred and fifty—different persons, prominent men, experienced farmers, wool growers, and farmers especially, I would say, who have gone out of their own counties, sometimes spending three or four days of their valuable time attending a meeting, sometimes one or two days, but giving all this time outside of their own county because of their interest in the work, because it was only a trial and experiment, and wishing to see it reach the highest success. With continued work of this kind, this continued volunteer work on the part of such men, we might make an annual ap-

propriation of \$5,000 do. I said that \$12,000 had been expended. This work was donated, and halls were donated, and music was donated, and these donations aggregate dollar for dollar the amount that was given. I say the State and Purdue have together put in six thousand dollars. If we were sure that the very best speakers among the wool growers, and farmers, and others—if we were sure of that as before, I think we might get along.

Mr. J. Q. A. Seig introduced the following resolution, which was adopted :

WHEREAS, Believing that the holding of Farmers' Institutes in the State of Indiana has resulted in awakening an interest among the farmers that could not have been accomplished in any other way, and believing that a further holding of the same would continue to result in great good ; therefore be it

Resolved by this Delegate Board in Convention assembled, That we respectfully ask the Legislature to continue said appropriation in a sum sufficient to continue said work.

Mr. Davidson offered the following, which was unanimously adopted :

WHEREAS, On the 25th day of April, 1890, an act of Congress was adopted, entitled "An act to provide for celebrating the four hundredth anniversary of the discovery of America by Christopher Columbus, by holding an international exhibition of arts, industries, manufactures and the products of the soil, mine and sea, in the city of Chicago, in the State of Illinois, in the year 1893;" and

WHEREAS, In said act of congress it is provided that each State shall appoint a commission to represent such State at said Exposition; and

WHEREAS, Ground for the purpose of erecting suitable buildings, within which to exhibit the resources of the several States, is being procured, and the most suitable sites being rapidly taken ; therefore be it

Resolved by the Delegate and State Board of Agriculture, That it is highly important that the State of Indiana should be well represented at said Exposition in all its resources, and to that end we recommend to the General Assembly that it speedily enacts a law providing for the appointment of such State Commissioners, and that it makes an appropriation of \$200,000 for the carrying out of the purposes thereof.

Resolved, further, That the Secretary of this Board be and he is hereby directed to transmit a copy of the foregoing preamble and resolution to the President of the Senate and the Speaker of the House of Representatives of the General Assembly of said State.

DISCUSSION.

Judge Martindale, Indianapolis. Mr. President and gentlemen of the Delegate Board, I know that your time is being profitably occupied to-day. You are busy, and I am not in the habit of making long speeches, and shall not do so at this time. I simply want to present a few views which I have touching the importance of legislation for a proper representation of our great State at the World's Columbian Exposition, to be held at Chicago. This act of Congress, as you probably know, provided for the appointment of Commissioners from the States. The Congress of the United States recognized the appointment of the Commissioners, and it is a credit to the committee that they have been appointed equally among the political parties. The Governor of our State appointed Mr. Garvin, a Democrat, of Evansville, and myself, a Republican, as he designated to the President, and we were appointed as Commissioners to the National Commission. He also recommended Mr. Travis and Mr. McLain as alternates. It also provided for a Board of Lady Managers. I recommended Mrs. Meredith, and Mr. Garvin Mrs. Rice, of Evansville. These are the representatives from Indiana on the Board of Lady Managers. Under the law it was provided that the city of Chicago should organize a local board to raise \$10,000,000, and they have secured, with appropriation and subscription, that amount. I come here simply to represent the State of Indiana. Indiana has taken a prominent place in this matter, and it is so recognized by the whole country, and particularly by the people of Chicago. They know her resources; they know of her gas discovery, her great agricultural and horticultural interests, her floriculture. These vast resources make it possible for us to stand close at the head of the great exposition of the wealth and industry of the different States of the Union. These great buildings at Chicago are to be constructed and dedicated in October, 1892, and the buildings are to be completed and dedicated at that time, ready to commence the Exposition. They are to be constructed and ready for dedication by that time, and the show itself opens in

April, 1893, and runs to the close of October, 1893. Under the regulations, a certain form adopted for each State, the form providing that there shall be members from each State—that the Legislature shall have members from each State—Commissioners, that is, two from each congressional district. They are to represent the various interests of the State of Indiana, according to the importance of the business, and those engaged in it, commencing with the agricultural and horticultural, and live stock. There is to be a chief appointed, with assistant chiefs for departments, and there is to be a regular classification, and the departments are to be made separate, and these chiefs take charge of these departments. We will enter under this. Each State will construct what is known as an administrative building. We can construct a building, with every article in it—from its foundation to its top—with Indiana material, and there is no other State in the Union that can furnish such diversified material as we can. We can furnish the stone for its foundation and the marble for its mantels, and we can furnish the finest plate glass made in the world, and we can make the looking-glasses. You can take the hard woods produced by this State, and you can build a building that will outdo any other State in the United States. The State departments will be run independently of the United States Commissioners. All the other States are taking an active interest in this matter. You will probably be surprised to know that the State of Texas has had a meeting and has appropriated \$1,000,000 to make an exhibition to advertise the State, so as to draw people to it. The State of California met and appropriated one-half million dollars. The State of Illinois will appropriate one-half million dollars. Now, about the grounds. When you go there to see these grounds, you will see as fine grounds as are to be found in the world. The location is on the lake. There are water courses and lagoons and canals that will run between the buildings; it will be Venetian in design, and you will never see anything of the kind in the world again. It is important that Indiana take prompt action and have herself in line, and go forward and secure a location favorable to her and construct

her building. I was going to state that the State Board of Agriculture of Illinois held a meeting without any proper authority. They went down and made a selection, and had assigned to them grounds to make their exhibit—asking for about seven acres. Indiana, if she will take prompt action—and she must do so at once, as the State Legislature meets now in a few days—I say she must take prompt action, for there will be no meeting of the Legislature until the dedication of their building. It is necessary that the Legislature at once make an appropriation to make a creditable display, that she may stand up at the head of the States of this Union. It is the object of this resolution to have you take prompt action, and the Legislature take prompt action. The State Board of Agriculture will be represented in this Fair according to its importance. This money will be paid out for your benefit. The administrative building there will be built by you. There will be a delegation kept there. It will be necessary to have a party or parties kept there at the administrative building for receiving the people that come from the State of Indiana. It is to be the headquarters of the people of Indiana, to furnish them facilities and information, to enable them to see the city and Fair, and to show to the people of the whole world the importance of the State of Indiana. I think Indiana has neglected her own opportunities in not showing the people of the world her importance in the past. Emigrants have been coming across and through our State for years, and they have gone beyond and paid fifty dollars an acre in other States when they could have bought better land in the State of Indiana, 1,000 miles nearer the markets, if they had been apprised of the fact. These States out there have been advertising their advantages. We will have the opportunity to advertise to the people of the world up there, and we ought to do it. We can run short excursions down here from Chicago during the World's Fair. We can show them what we have. I do not think the State of Indiana should appropriate less than \$150,000. I think it would be necessary to appropriate that much to make a creditable exhibit and place this great State in the line with the other great States of the

United States. Of course, this brings to your mind the great State debt, but I can not see any greater calamity that could befall us than a failure on our part to make a creditable show. We stand at the head of States in the raising of certain import products. There is no State in this country, in this or any other country—not in the world—that possesses the advantages for the production of the products of the soil as the great State of Indiana; and that is true also of the horticultural side of the question. You would not have it said that here or there is a State that has more interest than we have in this matter. It would be a calamity and a humiliation if Indiana did not take a great place in that show—the place that she is entitled to take; and it would be a great calamity if she were not backed by the Legislature to enable her to do this. There is no other way to raise this money than to raise it through the Legislature, and place it in the hands of your committee. You will have the expense of making your exhibit and maintaining the Administrative Building. There will be the expense of the live stock, also. A gentleman from this State told me recently that he was then getting his calves in condition for this display. If he makes a display of twenty head there it will cost him two or three thousand dollars. The question is, whether he can stand the expense. These gentlemen who will furnish the plate glass will furnish so much as an advertisement, and so much must be furnished to them. I don't know of a State in the United States that will make an appropriation of less than \$150,000. The little State of Nevada gives \$35,000. The State of Washington will give \$250,000 in making their display. When I name this amount I have considered it very carefully, and I think it is a small amount under the circumstances. While there is no amount stated in the bill, I believe that no less amount should be appropriated than that which I have named. I think it will be the best investment made by this State since its organization. If we go up there and present a poor exhibition of the State's resources, when you go up there and see the building we have constructed, and the things

we have up there to represent us, you will be humiliated. I say this will be your experience if you don't do it right.

A Delegate. I attended the Fair at Philadelphia four weeks, and I am in favor of appropriating \$200,000.

Mr. Mitchell. I think that is a very small amount. I know when we went down to New Orleans, there was not a man went down there from Indiana that wasn't humiliated. I met a number of men at that Fair that were ashamed to admit that they were from Indiana, and I think when we ask an appropriation we should ask one that will give us an opportunity to show Indiana up as she should be. As the resources of Indiana are so great, all the nations of the earth will be there to look down upon it; and we can not afford to make such an exhibition as we made at New Orleans, or anything short of what our State is entitled to. I hope that when you all go up there—you can, for it is close at hand—I hope you will all be proud of Indiana's exhibit, and I think that nothing less than \$250,000 will make such an exhibit as we ought to have there.

Mr. Seward. Judge Martindale has referred to the great debt that is on the State, and I say it is a calamity, but in my judgment a good appropriation for this great exhibit will be one of the means to remove that great debt. A man in business has to advertise to draw attention to his business. We have got room for more than four times our population. We have the agricultural products, and iron, and coal, and natural gas, and we can accommodate them. We have been so still about it that the people don't know it. The people in the convention to day are mostly farmers, and they are naturally economical, and when we talk about \$150,000 it looks like a big matter, and it is a big matter. Our Legislature has always talked about economy, but it seems that they stop up the spigot and let it run out of the bung-hole. If every member here would speak to his representative in the Legislature and give him to understand that we want to be properly represented there at the World's Fair, it will give him a little spinal bone to vote for it. A gentleman asked me yesterday—a representative—how much they would want, and I said: "I don't

know," and he said: "I think they want a large amount, and I think \$25,000 would be enough." That was the size of that man. It will not be money thrown away, gentlemen. It is a grand duty, and I am heartily in favor of a resolution to urge upon the representatives to vote on it quickly and get the matter under headway.

Mr. Stevens. I was going to say as Mr. Mitchell said. I would rather go to the Legislature and say that, rather than be represented at Chicago as we were represented at New Orleans—not to be represented at all. You may take the map of this State and locate her position, trace her resources as they are designated upon it, and see the great showing she could make—then talk about going to Chicago with \$25,000 or \$75,000. It is an insult. Go to Chicago as our soldiers went to the rebellion, and if it takes a million of money go into our resources and pay it. Stand there as men and women, even if these old fogies don't like it. "Our children will rise up and call us blessed!"

Mr. Lockhart. Mr. Mitchell spoke of the representation of the State at New Orleans, and permit me say that if the exhibition at New Orleans was not as it should have been, I charge the fault upon the Governor of Indiana. The Board had asked for an appropriation to make a display, and Mr. Carnahan went down there and did everything that could be done, but he was tied down completely.

Adam Earl. My opinion is that we should be in the foremost ranks with the Western States—we should be represented fairly and completely. I do not know the particulars—I do not know what is required to make the exhibit; but I do know that it will be a great advertisement, this World's Fair, for the West and the Western States, and they should not neglect their opportunity—they should not hesitate to do their part.

A Delegate. I see that Mrs. Meredith is here.

Judge Martindale presented Mrs. Meredith to the convention, saying: Mr. Chairman, this is the lady that I recommended to a place on the Board of Lady Managers, and I can say that I have never had occasion to regret that recommenda-

tion, for she has taken a high position among her associates on that Board. She can speak for herself here, as she can and does there.

Mrs. Meredith. I have nothing at all to say. I am in hearty sympathy with everything that has been said looking to our proper representation at that great Fair. We should take advantage of the opportunity which has presented itself to have the Fair at our own doors. I think Mr. Martindale has covered the points to be urged very fully, and I have nothing new to say. I thank you.

Chair. I will now put the resolution offered by Mr. Davidson, the adoption of which he moved.

Mr. Howland. I think it should be carried. This is a Delegate Board, and not a State Board. The limit should not be less than one hundred and fifty thousand dollars.

Mr. Mitchell. If you make it two hundred thousand dollars, you will find it too little. I should like to amend Mr. Davidson's motion, and I will move that the limit be two hundred thousand dollars—that that be the minimum. I want to vote that it be not less than two hundred thousand dollars.

Mr. Davidson. I accept the amendment.

Mr. Seward. I would ask that one word be put in to read that the "Delegate and State Board of Agriculture." If the mover will accept that, all right; otherwise I will move it.

The amendment was accepted.

Chair. You have heard the amendment, and it has been accepted by the maker of the resolution, and it becomes now a part of the original motion. The motion is on the resolution offered by Mr. Davidson, with the amendments accepted, that the amount be not less than two hundred thousand dollars, and the words "Delegate and State Board" added.

The resolution as amended was unanimously adopted by the convention.

Chair. We will now have the pleasure of listening to an address by Professor Wiley, United States Chemist, on the

CULTURE OF THE SUGAR BEET AND PROSPECTS OF THE MANUFACTURE OF BEET SUGAR IN INDIANA.

The subject which I was asked to speak to you about to-day is the one of the production of beet sugar. Without spending any time at all in preliminaries, I will begin at once with what I have to say.

The sugar beet is not a distinct botanical variety, but only the ordinary garden beet, which has been developed by scientific cultivation to its present high content of sugar. The ordinary garden beet may contain from three to five per cent. of sugar, and with this small content of saccharine matter, it would not be possible to make sugar in competition with those of a higher content, but by selection of seed and taking advantage of the selection of seeds of the best developed beet for sugar purposes, as has been spoken of, and applying this principle all the way through, we have seen it run from the condition I have mentioned, until now it has an average content of 13.4 of sugar. In the development of this beet some different varieties have been reached—all about the same botanical variety, but different in size and foliage; and this is how

THE DIFFERENT VARIETIES

Of the sugar beet are distinguished from one another. I have a few of the models of the sugar beet, being exact reproductions in size, in weight, and in color of the originals that served as the models from which these were made. They represent exactly to the fraction of a gramme, the actual weight, size—all the dimensions—of the beet from which they were taken, and are, in one sense, typical in their nature. One of the greatest difficulties we had to contend with in the production of beet sugar, and in the production of the sugar beet, is the desire many of the farmers have to produce a large beet. They think that if they have a beet of large size, they have the very elements necessary. Almost the contrary of this is true. When it reaches this great size it loses its sugar content, and the manufacturer will hardly take them at all, and the farmer, if he persists in this, will lose his market. This (indication with model) represents the French beet. Nearly all of the beets of the present day are white, and all the color has been almost eliminated from the beet. All the flesh color has been eliminated from the beet on account of the damaging character of the coloring matter. These beets (indicating with models) are labeled, and you can tell by the size and weight of them what the typical sugar beet is. The typical sugar beet should weigh a little more than one pound. It is given in the terms of the metric system, which is generally used, and is about 500 grammes. This will, perhaps, be found to weigh a little more than one pound, on an average. Now, the beets of this size—the small size—are almost uniformly richest in sugar, and are preferred by the manufacturer. But there must be a middle place between the manufacturer and farmer, and hence the farmer has reduced the size of the beet; but the manufacturer does not ask him to reduce it. The farmer does not like to reduce it too much, as that reduces the tonnage he may have. But, if the tonnage is lower, the manufacturer

is willing to pay more for the small beets. It is so much a ton for a certain percentage of sugar, and increasing for each additional ingredient in sugar, and he receives as much for a small beet good in sugar as for a big beet poor in sugar. So, you see, it is more to the farmer than to the manufacturer that he (the farmer) should raise a smaller beet richer in sugar. You will see here (exhibiting model) a beet raised by the great Paris producers, and you will see by the shape of the beet and the root, and you can gain some idea of how the root gains a hold in the soil. I shall not go on in order as I should have wished. While I am on the subject of the growth of the beet itself, I will say something on the

PREPARATION OF THE SOIL

For the production of the beet. This is a matter of great importance, and one which is not, I fear, well understood. The growth of the beet is horticultural—it is garden work throughout, and that is the reason why it has been so difficult in this country to introduce the cultivation of the sugar beet. Our farmers have looked upon it as an agricultural branch. You take a farmer who has been in the habit of working thirty or forty acres with a single team in ordinary agricultural work, and then tell him that it requires as much work to tend five acres in this industry, he becomes discouraged. Deep plowing is absolutely necessary, for it doesn't get its nourishment at the top of the soil. You are safe in turning it much deeper than for ordinary crops, and use an application of well rotted manures. The first plowing should be nine or ten inches, and the sub-soil should be turned as deep as twelve or fifteen inches, and unless you do this you can not hope for a beet production. If you don't get into the soil the beet will get out of the ground. If you examine this kind of a beet, you will find it poor in saccharine matter, and if it is only put in to the depth of five or six inches, it will be found worse than useless. The preparation of the soil should in spring be followed by thorough stirring of the surface. The entire plant should not be put in more than an inch; if planted deeper than this your beets will never reach the surface, and they will rot and die. A great many of the failures which have been chronicled may be attributed to deep planting. Now, on the point of the

NUMBER OF PLANTS TO THE ACRE.

The number of plants to the acre should be about forty-five thousand, or, say, forty thousand, and, calculating that they will average one pound each in weight, you will have twenty tons of beets per acre. To enable this number of plants to grow, the rows should be planted from six to eight inches apart, and letting them stand, say, nine inches apart. You should plant four or five times as many seeds as you wish plants. Instead of four or five pounds per acre, you should plant ten or fifteen pounds per acre. This care in planting is the repugnant part to the farmer: the effect of this hoeing on the back to secure this careful distribution of the plants. (Laughter.) If this is not done, you must give up all hopes of securing any material success in beet culture. They must stand uniformly apart, as I

have indicated. If they stand close together they will be stunted, and if left too far apart then they will take all the sustenance that is given it by this great distance, and will grow to an enormous size, weighing four or five pounds, perhaps, and be poor in sugar.

I will now speak briefly upon the growth of

THE SUGAR BEET IN INDIANA.

You are more interested in this. I have brought with me the analyses of all the beets grown in Indiana and sent to me. The Agricultural Department sent out about six thousand packages of seeds to this State; we also sent directions for planting (it was a little late); also directions for selecting the samples grown for use in analysis, and in response to this request we received these. From Decatur County we received these samples, and I will run over this to show you the results as done in this haberdasher way.

We give the name and round number of content, the variety of the sugar beet, and the date when received, and the percentage of glucose, and ninety-five per cent. of the beet is left. In determining the amount of sugar we first determine the juice, and then, knowing that factor of the equation, we multiply it by the average weight in grammes, then we have converted that into ounces, as you are more familiar with that, and the tonnage to the acre, in case you have forty thousand plants, and then the pounds of sugar per acre as grown with that beet—on that supposition—and then the pounds of sugar from the character of the beet as grown in that locality. In Decatur County the result is very poor, only 5.3 per cent. in sugar. The sugar seemed to revert. In another locality the same variety had double the amount of sugar—10.50.

Benton County furnished a large number of samples, a number from my own farm, and from others. I will call some special attention to this county, as it is apparently a very favorable locality for the growth of the sugar beet. I want to call attention to the increase in the sugar content from the beginning to the close. We said to the farmers in sending out directions. We said to take the sample about the middle of September, and then the middle of October, and on the 26th of September the first samples were taken from my place with 11.88 per cent. of sugar in the beet. On the 25th of November the content had increased fully two per cent. by leaving the beets in the ground, reaching 13.87. In many cases in other parts of the county much richer were produced; from Mr. Noe's farm, reaching 14.62 in November. The higher the saline coefficient the greater the yield will be, all other things being equal. The saline coefficient means simply salt in its proper quantity in the soil. When the saline coefficient falls the yield of the sugar will fall, and when it increases the increase of sugar will be larger. In Cass County we have a content of 12.43, with a purity ten degrees lower than Benton County. In Clinton County only one sample, but the richest, with a percentage of 18.15; also one from Howard County having a fair per cent. of juice.

I will say that a large number of samples were analyzed at the Station at Purdue, but we haven't the results of that Station. These are from samples sent direct to Washington. I will give you the results:

U O F B

Hamilton County	10.17
Grant County.	8.68
Montgomery County.	7.70
Marion County	9.85
White County	8.23
Tippecanoe County.	8.31
Newton County	9.98
Greene County.	13.33

This is the per cent. of sucrose.

By simply glancing at these numbers you will see what a difference has been obtained from the same seed. It is due to the treatment of the seeds and plants and the local variance in the season. But you see the

IMPORTANCE OF GETTING GOOD BEET SEED

And treating it properly, and you will see that the whole benefit gotten by seventy-five years of cultivation may be lost in one year. It is absolutely necessary that the scientific treatment should be thoroughly understood and thoroughly practiced by the farmer.

A Delegate. Do you think black soil is best for the beet?

Prof. Wiley. The prairie has done very well. I did hope to have a map to show the beet sugar area of the State of Indiana. I will state that the point in the State of Indiana probably best suited to the growth of the sugar beet is the northern part. It is necessary that the sugar beet be kept in a moderately cold climate. The mean temperature in Europe is shown to be 70 degrees Farenheit—that is, taking all the temperatures of the months of June, July and August—and where this temperature is 70 degrees mean the sugar beet will do best. I have traced across the United States a zone at this temperature—70 degrees Farenheit—a zone two hundred miles north and one hundred miles south of it, and I have professionally located all the best points of this country. Of course there are places north and south of this where they may flourish. As to the part of Indiana covered by this zone, the whole of

THE NORTHERN PORTION OF THE STATE

lies within this zone. This thermal line is almost the boundary between Michigan and Indiana, and almost one hundred miles in Indiana I have found a zone in which beet culture will flourish. The city of Lafayette is almost on the southern part of this zone. I think it is probable that the best results will be found within this zone, and not south of it. I have looked upon the cultivation of the sugar beet in Kansas with some doubt, as the hot summers there will tend to make it unfit for sugar-making purposes. There is an immense area (taking in all of the United States) in which the sugar beet may find a home. It is not claimed that



every acre in this zone is suited to it. There are outside circumstances that would affect it. The surface of the soil—as to whether it is level or hilly—must be taken into consideration. Beet culture does not do so well on hilly land; it has been found to be best on lands more level. Taking all these things into consideration, I would say that there are immense areas in the United States in which the sugar beet could be cultivated with success. If we should have, say, six or seven thousand acres of sugar beets under cultivation, it would furnish about all the product that this country would need; and in this zone you can find that amount of acreage especially suited to the culture of the beets. But one of the chief things to be considered is to find this necessary locality. It would be useless to try to force the cultivation of the beet in localities not suited, in the face of the fact that there are plenty places suited to it.

I will now say a few words in regard to other matters connected with the growth of the sugar beet, more especially in regard to

ITS MANUFACTURE INTO SUGAR.

We receive every day at Washington letters—sometimes twenty or thirty a day—making inquiries in regard to the manufacture of beet sugar. I remember that one was received in which the writer said: “I have a small cider mill and a kettle, and I want to know the directions for making beet sugar,” believing that all that was necessary to turn out the pure article was a cider mill and a kettle. [Laughter.] The letters we receive from many others who want to put large sums of money into the business betray about the same ignorance in the matter. It is not strange, however, for the matter is a new and novel one. I will try to lay before you in a few words these principles, that no one may go wrong in the further pursuit of this work. In the first place, it is not probable that the manufacture of beet sugar in a small way can ever prove successful. In the first place, you can not use the product for table use, as you can in the case of sorghum, on account of the salts which are in the beet. The crude beet product is bitter and unfit for use when it is not purified; and I think we may banish all expectation of the manufacture of beet sugar in a small way. It is (in its crude state) a potash and carbonic acid mixture; in fact, it is a strong solution of lye, and would not be fit for table use, and only one part to twelve of sugar present in the beet. The manufacture of beet sugar should be carried on in a style sufficiently large to make it and purify it for table use.

THE BEST SUGAR TO MY TASTE

Is the sorghum sugar. It has a taste that, in my judgment, is better flavored than the purified sugars placed upon our tables. You can use all the grades; they are all, excepting the lowest grades, suitable for table use, and still they make sugar in Louisiana yet. They make it there by boiling it in open kettles without any centrifugals; they make a sugar for table use, and it brings the highest market price.

The object of the beet sugar manufacturer is to make a cheap sugar that is absolutely pure, and I have a product here made in Nebraska, and you can see that it is an absolutely pure sugar. They made a granulated sugar of a small crystal, and one of a large crystal; the small is better than the large one. Here is one (exhibiting sample) made by the application of bluing, and not granulated. It is much inferior in quality to the granulated. This one (exhibiting sample) is a raw sugar that has not been purified, and is not fit for table use. I will explain after a while the method of manufacture, and while I am on this subject you can pass them around for examination. This (exhibiting sample) is the sugar after it has been boiled and drawn out ready for drying. It is the same substance you have in the other vessels here, except this has been dried and granulated, while this (indicating) is in its natural state. This we call the massicot. When it is put into this molasses, it will produce a second crop of crystals. This is also put through a drying machine, and the molasses are boiled, and you get a third crop, and in many manufactories they get a fourth crop of crystals. Here is the molasses from which three crops of sugar have been taken, and this shows the crystallization, and shows a fourth crop taken from it.

NOW AS TO THE MANUFACTURE ITSELF:

The sugar beets are first, after being brought from the field, thrown into a trench, where water is applied, and thoroughly washed and freed from all dirt. You will see from the models of the beets shown you that there are fine fibres that hold dirt. This would affect the cutting machine and be bad otherwise for the machinery and the product. After the beets are placed in the elevator they are brought to the cutting machine. It is a horizontal disk, with cerated knives which cut the beets into fine chips, which chips fall down into the cells of the diffusion battery. I will explain more in detail presently one of the cells. These beet chips fall into this cell (indicating) until it is filled, then it closes, and it passes to the next one, which is now empty. In these cells the clippings are treated with hot water considerably below the boiling point, and as the water stands with the chips the sugar diffuses and goes into the cells. This we call the diffusion battery (indicating on chart). The water then is forced into the next one, until, practically, the whole of the sugar is exhausted. If they contain 14 per cent. when they are placed there, when the diffusion process has done with them they do not contain more than $\frac{1}{4}$ per cent. After the juices are extracted in this way, by diffusion, they are placed in the tanks, which you see there on the extreme right (indicating on chart). The juices as you see here (indicating) mixes with slack lime, made strongly alkaline. After the juice has been placed in these tanks, as I have described, they flow through the juice from the lime-kiln, the carbonic acid, and it reduces the juice into what looks like ordinary limestone, and this is broken. The juices that come from the battery are black as ink, and by the time they finish this process and pass to the filtering process, and this lime is removed, these juices become of an amber color, and are transparent. When one saturation is not sufficient they are treated the same way a second time, with a less amount of lime, and

are given a second filtration. After these juices are so treated they are ready for boiling, and they are boiled in vacuum. They are so arranged that the vapors that are employed in one vat pass to another, and thereby there is a saving of fuel. In this way, with a very small expenditure, the juices are rapidly concentrated to the form of a syrup—a thick syrup. After the syrups have been concentrated sufficiently here they are taken up by this pump (indicating), and are then ready for boiling for sugar. The boiling of the sugar takes place in the vacuum strike plant. In Mr. Spreckle's sugar house this plant is 17 feet in diameter and 30 feet high, and in others they are seven feet in diameter and eight or ten feet high, and will yield in one strike thousands of pounds of sugar. It is boiled down until it reaches a grainy point. Then you have a pan full of very fine crystals. When they are once formed they have the appearance of flour, and they begin to draw into this pan a constantly increasing quantity of syrup, and these continue to grow and become what I have shown you in the samples. Sometimes they make a very small crystal and sometimes a very large one. If the operator makes a small crystal he puts the pan full, and if a large one he puts in a little. After it is boiled the sugar passes into the centrifugal. It is a continuous process from the time the sugar is put in until it is barrelled.

I promised to explain to you in detail one of

THE DIFFUSION BATTERIES.

Here is the top where the chips enter. Here is the bottom of the cell, which can be opened. When they wish to discharge the cell this whole bottom comes out. This apparatus is to heat the juice in passing from one to another. In passing from one cell to another, it passes through a system of heaters. The thermometer here (indicating) shows the amount of heat. These are the expensive parts of the apparatus, the diffusing battery costing—I don't know whether more than the boiling apparatus, but as much—one using from three hundred to three hundred and fifty tons a day will cost from \$250,000 to \$300,000. The amount produced depends, of course, upon the size. A battery of large size works more economically than one of small size, and it shows you that you should not work less than three hundred to three hundred and fifty tons a day. It shows that the farmer could not raise the beets. To work a factory of this kind would require three thousand acres, and the factory should be located in the beet-producing fields, and the beets should be carried as little as possible. If you could locate the grounds, a good area of five to ten thousand acres of land, and could so arrange that the beets would not have to be carried from three to five miles, this would be the ideal location. We have some of the finest factories in the world. The one built last year is almost perfect. The one built by Mr. Spreckles and the one at Eldorado are likewise almost perfect. They are building two at Salt Lake City with a capacity of four hundred tons per day.

From the analyses I have made from all over the State, I have concluded that the northern part of the State is best suited for the culture of the sugar beet. I take it that the climate of Northern Indiana is better suited to the culture of the

sugar beet than Nebraska or the Dekotas, where the interest seems to be centering now. If fifty or one hundred farmers in Northern Indiana would try to cultivate that amount of acreage to properly produce them, there are millions of capital in this country waiting for investment and invitation. If you can convince them that you can raise them, that there is not a possibility of doubt of growing them, the money is plenty and waiting. In a part of this State—the northern part—we have not only the soil, but we have other and unusual facilities. Take the natural gas belt and see what cheap fuel may be had; and if they do not go there, we have the best quality of coal, which can be put down at their doors at a nominal price.

THE SUGAR CONSUMPTION

Of the United States is now nearly sixty pounds per head—over fifty-five pounds per head. Not only is the population increasing, but the amount per head is increasing. Not many years ago it was only forty pounds per head. Sugar is becoming cheaper and more is used; and the taste for it increases, and it will grow to what it is now in Europe; it will reach what it is in Great Britain, where it is seventy pounds per head. We may look forward to the future when, in this country, it will amount to seventy pounds per head. The consumption last year was a million five hundred thousand tons in this country, and less than two hundred thousand tons of which was produced in the United States. If we had the best of facilities for its production we could not produce as much as we want. We have a market now and it is expanding every day, and I know of no opening more promising to the farmer than the production of the sugar beet in this country. Every plant produces sugar, even the mushroom, it is an indigenous plant. I have just come from Florida, the best sugar producing land in the country. We have Louisiana, we have Western Kansas and the Indian Territory, and we have elements there to make the production of sorghum molasses a certainty. Add to this the outlook of the beet sugar in the North, and from its resources I see what we may accomplish in a few years—I mean thirty-five or forty years, perhaps, when we will not need to look to foreign nations to produce for us one of the best and most necessary items that we consume in this country.

DISCUSSION.

Prof. Huston. I would like to enforce the remarks of Dr. Wiley. I personally have handled every sugar beet that has been sent to the station this year. I am not exaggerating when I say that all the Indiana beets, with the exception of those from Dr. Wiley's farm, have not been grown in the ground, but in the air, and I cut almost every one that came into my laboratory where this rubber band is (indicating), and this part

(indicating) went into the waste basket and the rest into the laboratory. Good directions were sent out, but they were neglected. The question of deep plowing should have been observed, but it was not. I have observed that the content of sugar from the beets submitted to me is about as Dr. Wiley has stated to you. In regard to the present year, I would say I believe that in one respect we have been fortunate, and in another unfortunate. We have struck the worst year that we could ever have struck to raise sugar beets in this country. During the present season there has been a little cigar-shaped strip with water enough to raise sugar beet; in other countries it has been worthless. Of course they have raised very good sugar beets where care has been used.

Another matter is the size of a beet. We have received beets at the laboratory varying from the size of a basket to the size of a tub, and there was actually one load that came to my laboratory that I could not use a knife on, but I had to saw them with a hand saw. That comes from not having properly followed the directions that were given. They had about six per cent. of sugar. I have noticed this map for a number of years as to the points in Indiana to raise sugar beet. It runs a little north of east, up near Hamilton County. I haven't put too great dependence upon that line. I have in my office, necessarily, all the reports of the State weather service, and have charge of all those reports myself, and I have been trying very carefully to ascertain the conditions in Nebraska, and in the immediate neighborhood of Grand Island. I have been comparing the conditions with the conditions in Indiana, and there is no point in Indiana, excepting the point down there that I mentioned—there is no place so far outside the belt as Grand Island, excepting, as I have said, that little strip. The climate of this State is almost identical in temperature with that of Grand Island, excepting, I believe, that their frosts come a little earlier than ours do. The rainfall in this State is one great factor that has not been emphasized. This year a gentleman wrote me that the entire growth of a certain beet sent in occurred the latter part of September. I think the weather condition of

September must be included in our estimate of the climate for the sugar beet. June, July and August have been considered heretofore, but I think September and the first part of October should go in here. I believe the temperature in this State is quite favorable for sugar beets. I believe that it can be expanded greater than has been indicated. I will say that I have been put in full control of the experimenting station, and I would like to secure the names of those wishing to engage in experimenting with the sugar beet; and I want to say right here, again, that it is not any use to try to raise sugar beets like you raise corn, and the time is wasted in putting men into the field trying to raise these beets unless they are raised properly. We haven't got much time to spend on experimenting in planting them in air and expecting them to be as nice as they should be. It is not always possible to make full explanations as to why this man or that man did not succeed. I found a statement that a man in this State had been raising sugar beets with twenty-one per cent. I thought I would like to find out about it. I found out who had raised the beets, and I got hold of the beet and put it into the hands of Dr. Wiley, and it had eight per cent.

Mr. Chas. Howland. I would like to say a word. I have raised some of these beets, and so have my neighbors, and I know they can be grown in Marion County. All we ask is plants to make the sugar; we can raise the beets. I have thought that you should have invited the Commercial Club over to-day. They seem to know how to start manufactories; they could, perhaps, assist us in getting up this plant. I suggest that Prof. Wiley go before the Commercial Club and give them a talk. It is the plant we want, and we can produce the beet. If you have any idea of any person that wants to start a plant, tell him to come along and we will furnish the beets.

A Delegate. Will the Professor kindly tell us the cost per pound of sugar from the time the work of growing the beet is commenced until it is ready for use?

Prof. Wiley. It has been made this year in this country at four cents a pound, including the whole cost, and it can, in my

judgment, in a few years, when the economic questions are fully understood, be made for three and one-half or, perhaps, three cents.

A Delegate. What price do the manufacturers pay the farmer?

Prof. Wiley. I think it is uniformly four dollars per ton. Some, I believe, bring five dollars per ton.

Chair. The next thing in order will be the address by Dr. W. F. Stott, President of Franklin College.

Dr. Stott. I think my speech, or address, rather, belongs right here; I think it should follow the discussion just closed. If you are to have tons of beets delivered to the factory, and in returning home from the factory, you must have roads.

ROAD-MAKING.

A hasty glance through the reports of the Indiana State Board of Agriculture leads to the belief that all subjects germane to such an organization have been discussed in papers and addresses except one, and that is country roads. Of course, there was a strong disposition to thus invade new soil, and be able to say what has not hitherto been said. The Government Reports on Agriculture contain pages on roads, and so it can not be far out of the way that such a subject be brought to the attention of this Board.

Of course, roads themselves are not new. They are as old as the race, for communication and commerce are essential to national and even tribal life. Queen Semiramis, as early as 1250 B. C., had done much towards the construction of highways in Babylonia. The Carthagenians, a people given to commerce, were wide-awake road-builders. The Chinese, centuries ago, built roads so serviceable that they are yet in existence and use, especially the great road leading from Peking southwest across the Hwai Valley. The Greeks were good road-builders, but as the roads were mainly for religious purposes, they were not as solid as those of Rome, and they circled about hills and mountains instead of being built over chasms and through these hills and mountains. Some of their roads were laid with flat stones, in which were cut grooves or ruts for the wheels of the chariots that bore the gods to run in. The space between the two grooves was filled in with sand or gravel. But the Romans, especially under the reigns of Augustus, Vespasian and Trojan, won world-wide fame for the greatness of their road system. The roads were built mainly for military and commercial purposes. They extended from the capital to all parts of the Empire, some of them being hundreds of miles long. The Appian Way, the great road from Rome to the Bay of Naples, was between three and four hundred years old when Paul marched over it from Puteoli; and now, after almost two thousand years, parts of the road are in a good state of preservation. But we

would not wonder greatly at the permanence of the Roman roads if we stopped to study their construction. As their purpose was mainly military, they were built on straight lines. The base of the road-way was formed of one or sometimes two layers of stone placed edgewise, laid in mortar. Upon this was placed a layer of broken stone and mortar, and still over this a layer of more finely broken stone and fresh slaked lime; and then over all this were placed the flat, smooth polygoud stones. Meanwhile the greatest attention was given to the matter of drainage—no water being allowed to gather on the surface or at the sides of the road.

But little attention was given to road building in Germany till the middle of the eighteenth century. About the same time Tresaguet created considerable activity in France. His system was peculiar in that instead of a stone foundation for the road, he graded it, and then made the bed hard by the use of rammers. On this bed is put a layer of broken stone, and then it is rolled with a heavy roller.

England has won a chief place for road construction. The two great systems there are those of Tilford and Macadam. The main difference between the two systems is that, while Tilford put down a stone foundation before placing the layers of broken stone, Macadam put the first layer of coarse broken stone immediately on the ground. In this country the Tilford system obtains mainly in the construction of streets, while the Macadam system is in use in the building of roads.

In the United States the development of road construction has been comparatively rapid, and a greater variety of material is used than in almost any other country. In pioneer times the only thing attempted in the wooded lands was the cutting of a wide track (often one hundred feet) through the forest, to let in the sun and prevent the felling of trees across the roadway. There was but little grading. Over very swampy places it was necessary to build what is called corduroy roads. But while these were better than mud, they were so rough that they soon gave way to something better. In turn plank roads were tried, but they soon ran their course. They were too expensive and difficult of repair. Shell roads have been tried in some localities, but they lack body and can not endure heavy hauling. The main material used here is broken stone and gravel—gravel coming into use much later than broken stone.

In our own State all these kinds of material have been used with the exception of shells. The old Michigan road was cut one hundred feet wide by Indians, who were rewarded by free tuition in a school designated for them across the river in Kentucky. It was macadamized on the southern portion, especially on the hills of the Ohio—for stone was plenty and of a good quality. The "three-notch line" was at first merely a blazed way—the three notches were cut on the face of the trees to make a sure guide for the emigrants moving into or across the State. The old National road (of which Washington Street, Indianapolis, is a part) had more work put upon it than most roads of the time, for it was built by the government, but even it had little or no broken stone or gravel.

But leaving, now, this brief historical introduction, let us come directly to the main subject in hand—*road-making in Indiana*. The discussion is not of streets, but country roads. And surely the theme is large enough, when we are reminded that there are in our State no less than about sixty thousand miles of roads. This

includes stone, gravel and dirt roads—those that charge toll and those that are free. Fortunately for the State, there is but little trouble in locating roads. Unlike Kentucky and many of the other older States, our lands are surveyed on regular section lines; and so these lines become the sites for our roads. \Fortunately, too, most of the surface of the State is so nearly level that it is possible to locate the roads on lines; and still more fortunately, there is an abundance of materials in nearly all places for road-making. In the south and southwest stone abounds, in the central portion gravel is plentiful, while at the north there is a prevalence of sand. In many localities which were once thought to be destitute of gravel, it is now found to abound in banks above or below the general level. We do not need the solid roads that the Romans did, for the railroads do the heaviest transportation, and our road vehicles are not nearly as heavy as those used in the Roman Empire or England. We now have steam crushers, so that the preparation of the stone is not nearly so tedious and costly as it once was.

For a long time it was thought that a sand soil would, of necessity, debar the construction of good roads, but it is being ascertained that a certain clay found in many places, when mixed with the sand, will unite with it and make a very hard and smooth bed. The experiment was made on a small scale on the sand road between Benton Harbor and St. Joseph, Michigan, near the Indiana line. The sand was so deep that no team could draw a respectable load through it. Finally a tough clay was found along the bank of the river near by. Some of this was spread on the sand road, and before a great while the bed was solid and smooth. Enough at least has been seen to give us hope that our northern counties may at length have excellent roads. Engineers assure us that slight gradients are better than a dead level, for the sake of drainage at least; and drainage is of prime importance in road making. Water must be run off rapidly or all hope of a solid road-bed is gone. If it runs over the surface of the road it washes; if it is allowed to soak the road-bed, the bed gives way under travel; and if water is allowed to penetrate the bed and freeze, the mud becomes literally bottomless. Ditches at the sides are a necessity, and it is found that tiling under the center of the road-bed is of vast advantage. Of course there should be frequent outlets from this central tile. The crown of the road-bed should be but little higher than the sides, for if it be considerable higher all drivers will hold to the middle of the road so that their vehicles will be level. Thus but a small part of the road is used, and when wagons turn to one side, as in passing each other, the incline makes the lower wheels plow into the bed. In the use of heavy rollers much is gained in solidity and in rapidity of packing either gravel or broken stone. Scarce any material is harder to drive through than gravel till it is packed. The roller packs it almost at once, and frequent scraping and rolling keeps it packed.

But possibly all these facts are already known to most farmers better than to me. They may know that it takes 28 per cent. more force to draw a load on a muddy road than on a dry one; and that in the relative order of good road-bed material, broken stone, smooth and dry, stands first; plank road, in good condition, second; and dirt road, in good condition, third. They may also know that the broader the wagon tire the better for the road, and all that. So I would like to turn attention to what may not be so familiar, viz., the desirability of double

roads, one stone or gravel, the other dirt. Let each be equally well graded and drained and kept; and let them lie immediately alongside each other. Lay out each eighteen feet (except near cities where they should be wider), and give four feet on one side for a walk. This will require but forty feet in all, inside the ditches. A track eighteen feet wide is ample for the passing of teams, and is far more easy to keep in repair than a broad track. Let a line of wire or other fence run between the two tracks, so that teams may not pass from one to the other, for this would soon cut into one or both the tracks. But what are the advantages, of parallel tracks, one stone or gravel the other dirt? The advantages may not all occur at once, but these are some of them: About half the year the dirt road is in condition for travel. To travel on dirt is far easier on the team, on the vehicle and on the driver and passenger. There is an elasticity in dirt that is not true of a packed road. Ninety-nine men out of every hundred will prefer the dirt road, when the wheeling is good. The saving in the team and wagon would build the dirt track many times over. Again, while the dirt track is in condition the gravel track is being saved wear, when the wear is relatively the greatest. With a dirt track, doubtless more than half the expense for keeping up the gravel track is saved. Again, one track can be used while the other is undergoing repairs. Another suggestion, which of course is somewhat familiar to all, is the desirability of shade trees lining the road. On north and south roads these trees could be put on both sides, and on east and west roads, on the south side. Let hardy trees, which of course are slow growers, be selected. They do not greatly injure the road by shading, and they are very beautiful. Once more, there ought to be convenient and ample facilities at the road side, every two mile or so, for watering teams, and at every mile-stone a pleasant seat for weary travelers.

It is earnestly hoped that none of the suggestions in this paper will seem far-fetched nor trivial. It has often been said, and with truth, that roads are an exponent of the degree of civilization which a people has reached. The time was in our State when good roads were impossible. The country was not drained, and road material had not been found. But those good old days when "to ride in a stage-coach was to walk and carry a rail" are gone. We have a good system of drainage in general. We have grown vastly in wealth and commerce; our taste is of a higher kind, and our knowledge of road-making is better. If a man of average taste was seeking a home, he would seek it in a community that appreciated and provided the comforts of civilization, and nothing would decide the place of his choice sooner than the roads of the place. When taste is already good, such roads as I have described are a demand, and if such roads run through a place of poor taste, nothing would sooner bring taste up. Nothing, again, will keep our people on the farms like good and beautiful roads, and nothing will so quickly draw city population to the country. Those parts of our country where people most like to go are those which are traversed by good roads. What an excellent street is to a city a good road is to the country. Still more, travelers in Europe and Great Britain never tire of descanting upon the utility and beauty of the roads they find. We can have as fine, and owe it to ourselves and neighbors to have them.

The printing press, the schools and the colleges are helping in the formation of genuine æsthetic taste, which has no better field than our walks, and drives, and parks. Patriotism, too, demands that we let no country excel us in what it is possible for us to accomplish. Our people have been willing to be taxed for even poor roads. How much more willingly would they bear the burden of building and maintaining superb roads, especially since such roads facilitate travel and trade, and more than any other one thing, enhance the value of the farm lands lying on or near them. A great thing will have been done for this commonwealth when, instead of the saying, "Young man, go West and grow up with the country," it will be this rather, "Young man, stay at home and help make this country, and this part of this country, the finest and most desirable the sun shines on." We look forward to the time when, instead of six thousand miles of railroads in the State, we shall have twenty thousand, and instead of a few hundred miles of water-ways, we shall have ship canals connecting the lakes with the Gulf through the Illinois and the Wabash rivers.

But more than any of these, or all of these, we are sure that good, beautiful country roads will increase the value of real estate, introduce thrift and happiness and culture into the homes from which have come, and are to come, the strong, earnest, noble men and women, who are to give our government stability, and make our land the brightest and the best of all lands.

Now I am able to see that what I have emphasized may, to some, seem to be emphasized too greatly. That is to be expected. But I am willing to bide my time, and I shall not grow misanthropic if no monument should ever be erected to perpetuate the memory of him who suggests and pleads for parallel roads lined with shade trees. I am warned by the example of John Ewing, of our State, who fought for and finally secured the construction of the Wabash and Erie Canal. Long after his great victory he was one day walking along the canal docks at Lafayette, looking at the numerous boats with their names. He looked in vain to see his own, and not finding it he railed out in a great rage that so great a benefactor as he was should not have even the small appreciation of having his name on a canal boat. I shall not fall into a rage, but, rather, like Fischli, of Jeffersonville, who first suggested a railroad from that place to Indianapolis, I shall be sure that if such roads as I plead for are not built in the nineteenth century they will be in the twentieth.

DISCUSSION.

Mr. Jones. I had decided not to say anything in this meeting, as it is a delegate meeting, but I want to call the Doctor's attention to one fatal mistake that he makes in the question of pike roads. When he advocates shades for turnpikes he makes a fatal mistake. When the sides of our roads were timbered they bought the trees at any price to get them away. You can see why a tree on the south side of the road would keep it wet on an east and west road.

Mr. Stott. I would say that I didn't indicate how close they should be.

A Delegate. I think this is a very important subject. In our part of the State we have taken up this matter, and we think there should be a law enacted putting a tax of about 25 cents on the hundred dollars for road purposes. While there are many delegates here from different parts of the State, I think it would be well for all of us to take this matter home with us and try to impress the importance of it upon our legislators just about to come to the capital. We should have better laws enacted in this behalf.

A Delegate. It shows that men's experiences are widely different. I heard a gentleman in Rush County say once, and he had had experience, that that portion of the road where there were shade trees on the south side of the road cost them much less than any other part of the road; that it protected it in winter and kept down the dust in the summer.

Mr. Lockhart. I wish to introduce the following resolution, which was adopted:

Resolved, That the thanks of this Delegate and State Board of Agriculture are hereby tendered to Hon. Jeremiah Rusk, the able and efficient Secretary of Agriculture, for sending to this meeting Dr. Parsons, to present for our consideration the dangers of infectious diseases among the animals of our State; also Prof. H. W. Wiley, who has so ably presented the subject of the cultivation of the sugar beet, and the possibilities for the cultivation and manufacture of the same in the State of Indiana.

Second, That the farmers of Indiana appreciate the grand work the Secretary has accomplished since his appointment to the position he holds in this great American nation.

R. M. LOCKHART.

COMMITTEE REPORTS ADOPTED.

Your Committee on Fair Grounds have visited the grounds and find them in good condition. Many improvements have been suggested by the President's address and General Superintendent's report, all of which the committee concur in; but, owing to the expressed feeling in reference to moving the State Fair Grounds by the delegates and others, we deem it unnecessary to make a detailed report at this time.

ROBERT MITCHELL,
R. M. LOCKHART,
DR. JONAS GOOD,
FRANK MACARTNEY.

Your Committee on Finance beg leave to report they have carefully examined and compared the books and vouchers of the Secretary and Treasurer, and find them correct and to agree, and recommend that they be accepted and placed on file.

All of which is respectfully submitted.

JOHN Q. A. SEIG,
SAMUEL HARGROVE.

The time having arrived, the Delegate Board proceeded to the election of members of the State Board, which resulted as follows:

- 5th Dist.—V. K. OFFICER, Jefferson County.
- 6th Dist.—W. W. HAMILTON, Decatur County.
- 7th Dist.—E. H. PEED, Henry County.
- 9th Dist.—J. M. SANKEY, Vigo County.
- 10th Dist.—J. N. DAVIDSON, Montgomery County.
- 11th Dist.—LLOYD S. JONES, Huntington County.
- 12th Dist.—JOHN M. BOGGS, Tippecanoe County.
- 13th Dist.—W. A. MAZE, Tipton County.

A Delegate. I, for one, would like now to listen to Professor Butler's lecture on birds. I move that we have his address immediately, as some of the members will leave the room as the hour grows later. Carried unanimously.

Address of Prof. Amos Butler, Secretary Indiana Academy of Science, on

OUR BIRDS, AND WHAT THEY DO FOR THE FARMER.

There are many reasons why one may love birds. The sportsman and the epicure each has a reason for his likes. The milliner, with an eye to business, gives another explanation of the interest birds possess. The artist and the poet each finds subjects for pen or brush. The economist notes with peculiar interest the increasing fund of knowledge concerning the practical relations of birds to mankind. The naturalist appreciates the interest each feels and more. He enjoys the pleasures of one, combats the evil results of the demands of another, delights in the reproduction of the form or hue of some graceful or delicately colored bird, and recognizes the interdependence of animals and plants, and, further, the dependence of animal forms upon each other, and that from a proper appreciation of these important facts will come some of the most valuable investigations of our age.

There are some, I am aware, who can not appreciate the interest one takes in the study of nature. They see something ridiculous in any one who, in the language of the author of the "Ingoldsby Legends"—

Would pore by the hour,
O'er a weed or a flower,
Or the slugs that come crawling out after a shower,
Still poking his nose into this thing or that,
At a gnat, or a bat, or a rat or a cat,
Or great ugly things,
All legs and wings,
With nasty long tails, armed with nasty long stings."

Others there are whose science is well described in the idea Wordsworth gives us of that of Peter Bell:

"A primrose by the river's brim,
A yellow primrose was to him—
And it was nothing more."

'Tis probable that there are others to whom the term scientist at once suggests a person whose mind contains a very miscellaneous collection of incomprehensible and unpronounceable names, who might proceed to enlighten Peter by informing him that a primrose is a "Dicotyledonous exogen, with a monopetalous corolla and a central placentation; that it belongs to the order Primulaceae, and has ob-lanceolate, wrinkled, radical leaves; an inferior gamosepalous calyx, pentandrous stamens, and a syncarpous superior pistil," or whatever the proper terms may be. But it affords me pleasure to note that all men are not so.

The types which I have referred to are passing away.

Practical men are beginning to recognize that the results of the life work of each are best assured by an acquaintance more or less close with the fruit of scientific investigation. No one may profit more by such a familiarity with the principles which science teaches than the agriculturist, and I feel that I may say, that he is appreciating that fact and is profiting thereby.

We are all coming to think of science as that which gives us facts, which gives us accurate knowledge, which teaches us to observe and to think. We are learning to know science, in the words of Dr. Andrew Wilson, "as a living reality," as a faithful expounder of all that is worth knowing and that can be known; as an existing power, ever anxious in its unwearied march for the good and welfare of mankind; and best of all, perhaps, as an ever-willing instructor of all who will come to be taught.

We find that however lowly the form we study, be it animal or plant, it gives us new ideas of life, it brings to view worlds unknown and carries our thoughts into realms heretofore unrealized. We may appreciate Wordsworth's lines:

"To me the meanest flower that blows does bring,
Thoughts that do often lie too deep for tears."

The study of birds is but a very small part of nature and that of the economic relation of birds but one of the divisions of the greater subject. Yet, how great it seems! We have scarcely begun to know what to expect from the great amount of

research necessary before we can begin to appreciate the relations of birds to each other, to other animals, to plants and to man. How far-reaching these investigations must be, we can not see nor imagine. When we begin to think of the subject the one thought that fills our minds, is, how little has been done in this great field! Just now, under the direction of the general government, work of great importance is being done, but it would doubtless be a great benefit could some of our States, if, indeed, not all of them, should undertake investigations of such great importance. All knowledge upon this subject must be obtained little by little, line upon line, precept upon precept.

There are to be found in our State about 300 different kinds of birds. These are known as residents throughout the year; summer sojourners and winter sojourners, as they spend either summer or winter with us. Transients or forms which spend a short time with us in spring and fall. These last three groups are all migratory—and last, the rare visitors whose scarcity makes them noticeable. The following are examples of each: Residents—red-tailed hawk, dove and song-sparrow. Summer sojourners—cat bird, purple martin, king bird. Winter sojourners—snow bird, tree sparrow, shorelark. Transients—wild geese, gulls, snipe. Rare visitors—snowy owl, pelican. One of the greatest wonders of the nature is the instinct of migration. With what regularity do certain forms move from North to South, or South to North! How accurate the intelligence which causes them to travel from within the frigid realm of the arctic circle to the influence of the vertical tropical sun; o'er plain and forest and mountain, o'er river and lake and ocean, the course is laid and so true is the chart and compass of their faith that each returns to its former home as the warm air of spring awakens the sleepers of the winter time. Within our State may be said to be the meeting ground of several groups of bird forms. Our country is divided into several zoological districts, according as the forms seem in some way peculiar thereto. In the south-eastern corner of the State we notice a tinge of Carolinian life from the South Atlantic coast; south-west representatives of the Louisiana fauna, as the mocking bird, summer tanager and snake bird. North-west of the prairie forms as lark finch, western meadow lark, yellow headed blackbird, and in the north-east the Canadian forms appear, represented by Bohemian waxwing, snow bunting and snow owl.

Within our limits are not only the plain, practical birds, but are many famous for their beauty, the orioles, cardinal, tanagers and indigo bird; others noted for their voices, as the wood thrush, wrens, song sparrows, and brown thrasher, and still others that have been honored with places in literature, the pewee, bobolink, crossbill, titmouse and meadow lark. But I must now turn my attention to the more practical part of my subject. It seems generally understood that some birds are beneficial and others are injurious. There is perhaps also a middle group which has not yet had its members classed with either of these, because no reason has appeared for so doing. To some extent for several reasons this grouping, especially when localities are considered, is arbitrary. The bobolink of the prairies of Indiana and Illinois is known as "rice-bird" in the rice districts, because of its love for rice, which makes it so great a pest. The redwinged blackbird which has

such a good reputation among us becomes also a ravager of the rice fields. The bronzed grackle or common blackbird has not a bad record in Indiana, but in the cornfields of Minnesota and Wisconsin, the destruction they cause is incalculable. My remarks therefore, unless otherwise noted, will have a local significance. All animals and plants increase and develop in accordance with their surroundings. With each it is a continual strain, a persistent effort to grow. The weeds vie with each other as do the stalks of wheat; the ferns grow large when the weaker ones have been crowded out, just as the larger cottonwoods grow larger because the smaller ones have died; the weak butterfly dies because it can not compete with its stronger brother; so the unit in the sty weakens as its larger relatives grow stronger. But the contest is not between individuals of a kind alone. Flowers and weeds contend for the mastery as do muskrats and weasels; or birds and grasshoppers. The old statement that in some countries the clover crop depends upon the number of old maids is an illustration, which though a joke, is in point. It is well known that without the visits of the bumble bee the red clover does not bear seed; meadow mice are great enemies of bumble bees, while cats are very destructive to these mice, and as old maids are noted for their fondness of cats we may readily see how the conclusion was reached. Changes of conditions tend to increase or decrease the number of individuals of a species. If the changes are toward more favorable surroundings, the species may increase in number very rapidly. When such is the case vigorous measures are necessary to reduce the number and restore the equilibrium. This is noted in the increase of such forms as the army worm, but with them appears the ichneumon fly to reduce the number and hold it in check. Many instances are recorded where, when insects had by reason of favorable conditions become exceedingly abundant, not only did the number of enemies increase, but also many species of birds and mammals forsook their accustomed food and lived exclusively upon the new-found diet.

It is in the relation of birds to insects that their benefits are most obvious. Many species are insectivorous, that is, the greater part of their food consists of insects. Birds possess, to a great degree, two very important qualifications, which are worthy of consideration: 1. They have the faculty of varying their food. 2. By reason of their wings they are enabled to cover great areas and to travel long distances in search of food. These facts doubtless explain the increase of birds in given localities, when food is unusually plentiful.

The rate of increase of species is a thing that forms a prominent factor in the consideration.

With species that produce but one or two young per year, the increase is simply the old question of easy mathematics. Species which produce a greater number surprise us by the enormous size to which the figures grow, but the wonder of mathematical results appear when we begin to figure on the rapid increase of species which produce several large broods in a year. Even man, should no representatives die, will double in 25 years and in less than 1,000 years there would literally not be standing room upon the globe. Illustrations of the increase of forms which bring forth more than one brood are numerous. We may see such in the rapid growth of numbers of the chinch-bug, army worm, or western locust.

Another good illustration is the English sparrow. From 1870-75 we are informed they spread over 500 square miles; 1875-80, 15,640 square miles; 1880-85, 500,760 square miles; 1886, 516,500 square miles.

The annual extension of their range on our continent has been something like 69,000 square miles. The investigations made concerning this sparrow seem to show that it would be very safe to estimate the average number of young per annum per pair at 24. If these were half of opposite sex and all lived ten years, at the end of that time, continuing the same rate of increase, we are told by some mathematicians that the number of descendants from that single pair would be 275,716,983,698.

Climatic conditions are prominent factors in calculating the increase of individuals, and periodical extremely unfavorable seasons seem among the most effective checks. Darwin noted that in the winter of 1854-55 probably four-fifths of the birds on his grounds perished. This is exceedingly unusual, for authorities estimate that ten per cent. is an extraordinary severe mortality from epidemics with man.

The winter of 1878-9 will long be remembered on account of the fact that our quail—Bob Whites—were almost entirely exterminated. With the small amount of protection that has been afforded, they are probably now as abundant as before that winter. The severe cold storms which occur during the period of migration are fearfully destructive to the little travelers. All of us are familiar with benumbed or dead birds, found after such a storm, at the height of the migrations. It is not uncommon at such times to find the shores of our lakes lined with the lifeless forms of these tiny pilgrims, which have fallen victims to the cold and waves.

Among insects that most concern us are both those which are beneficial and those which are injurious. The former are so recognized because they prey upon the latter. In considering the value of birds to man we are compelled to note the sum of all their foods, and the extended range of the influence of their food habits. A bird which destroys injurious insects is recognized as beneficial, but shall we say that one whose food is largely beneficial forms is injurious? Perhaps not. In fact it would seem that we should hardly expect the beneficial insect to destroy the same kind of injurious ones as would the bird whose life it helps maintain.

And further it is not the kinds of insects whose numbers are relatively the same, year after year, which are the most injurious, but rather those forms which vary in numbers and appear at unexpected times in vast hordes.

The dangerous insects are these oscillating forms. The best preventives of excessive numbers is by protecting proper safeguards. Save those insects which would act as an important restraining influence in this direction, we may not count the value of other so-called beneficial insects above that of their food value in preserving birds which are mixed feeders and consequently are available as a destructive factor when any unusual increase of a varying insect form appears. The fact that insects are great destroyers of the products we count as gain is well known. Various estimates have been made of the great destruction which certain

species have caused, with which you are perhaps very familiar. I find convenient one or two references to estimates of that kind which serve to emphasize the great importance of expert study of the relations of insects to plants, and to their enemies among birds, mammals and fishes.

Mr. Walsh, ex-State Entomologist of Illinois, has estimated that the average annual damage done by insects in that State amounts to \$20,000,000, which amounts to about 56 cents per acre.

Referring to the same State again we are informed that the average value of the apple crop for five years preceding 1884 was about \$4,750,000, concerning which Prof. Forbes says that observations and experiments seem to indicate that about 50 per cent. of the possible crop is sacrificed each year to a single insect—the codling moth.

In presenting to you a few of our birds, I shall select some from the different portions of the farm: From the meadow, the woodland, the marsh, the orchard and lawn, and some from the neighboring riverside. While all birds are of interest and value to us, in one way or another, those with which we are surrounded do most interest us.

MEADOW.

BAY-WING BUNTING, FIELD SPARROW, two sparrows, whose life with us is spent among the pasture fields and meadows. The former is well known by its grayish color and the two outside white feathers in its tail, which it shows when it flies. The latter much resembles the chippy, so common about our door-yards, but is slightly larger and has a livelier, louder song. Both live on seeds and insects. The Bay-winged Bunting, known also as the Vesper sparrow, is one of the birds famous in literature. John Burroughs has introduced him around the world. He says: "Have you heard the song of the Field sparrow? (The Bay-wing Bunting.) If you have lived in a pastoral country, with broad, upland pastures, you could hardly have missed him. His song is most noticeable after sundown, when other birds are silent, for which reason he has been aptly called the Vesper sparrow. The farmer, following his team from the field at dusk, catches his sweetest strain. His song is not so brisk and varied as that of the Song sparrow, being softer and milder, sweeter and more plaintive. Add the best parts of the lay of the latter to the sweet, vibrating chant of the Wood sparrow (Field sparrow), and you have the evening hymn of the Vesper bird—the poet of the plain, unadorned pastures. Go to those broad, smooth, uplying fields, where the cattle and sheep are grazing, and sit down on one of the warm, clean stones and listen to this song. On every side, near and remote, from out the short grass which the herds are cropping, the strain rises. Two or three long silver notes of rest and peace, ending in some subdued trills or quavers, constitute each separate song. Often you will catch only one or two of the bars, the breeze having blown the minor part away. Some unambitious, unconscious melody, it is one of the most characteristic sounds in nature. The grass, the stones, the stubble, the furrow, the quiet herds, the warm twilight among the hills, are all subtly expressed in song. This is what they are least capable of.

WOODLAND.

The woodland is the realm of mystery; without there is brightness and naught to screen the birds; there we know them whether in our gardens, along our fences or upon the stubble. In the woods at early morning the trees seem alive. The twittering, chirping, and singing comes from every tree and not often among the sombre shades do we see the authors, much less recognize them.

The ROSE-BREASTED GROSBEEK is one of the most beautiful songsters of the leafy shades. Throughout the southern part of our State they are migrants, but to the northward their striking appearance is recognized throughout the summer. These birds are greatly respected throughout their summer range because they are destructive to the Colorado potato beetle. The GREAT CRESTED FLY-CATCHER has been termed "the wild Irishman of the woodland." The foxy appearance, lively disposition, odd ways, and loud voice betray a character which is worthy of acquaintance. They devote their lives to such useful occupations that the term "fly-catcher" has been given them as characteristic of their insectivorous habits. One habit is always interesting. Whenever it is possible they procure the cast-off skin of a snake to put in their nests and by far the majority of nests found contain these strange ornaments.

The WOOD PEWEE is a relative of the last, and equally respected for the good it does. Its home is in the woodland, whence even in the heat of midday its clear call comes to one's ears. The SCARLET TANAGER is the most striking bird of the woods. Its scarlet body and black wings as it dashes through the open from among the green may be compared to a fireball, but few would imagine the plain green bird which follows was his wife. They range throughout the State, but in the southern part of the State another form—the SUMMER REDBIRD, vermilion without black wings, is perhaps more common.

THE MARSH.

The marsh is the home of all sorts of odd things. Some birds are long-legged so they may wade and are known as waders. Among these are the herons and egrets; others have long toes, so they may walk upon the shaky sedges; others have long bills which are provided with soft ends so they may distinguish their food by feeling it; others again are very small and slim, they seem to be enabled to squeeze between the closely growing stalks of grass, and are very appropriately called "Rails." They are all an interesting and beneficial lot, well worthy of care. Most familiar to us are the birds about our homes, the life of our orchards and lawns. They live their lives very near us and we become intimate with them.

CUCKOO.—Both species of cuckoos are found with us as summer residents. The yellow-billed much more commonly southward than its black-billed relative which ranges farther to the northward. When they arrive late in April and early in May they are found scattered over the sparser woodland and among our groves and orchards. In these latter and in neighboring thickets they build their loosely

constructed nests. This is certainly one of the most beneficial birds to the orchardman. I recall one experience of my own. A few years ago I wanted a cuckoo or two for study and anxiously awaited their arrival. One morning I heard the peculiar note from the orchard, which told me they had come with the warm southern breezes which made the morn so delightful. Hastily taking my gun I started to look for a specimen. A day or two before I had noted that my trees seemed very full of caterpillar-webs, of which I was considering the best plan to rid myself. As I entered the orchard I observed a cuckoo just over a large caterpillar nest, which it seemed to be tearing to pieces. I watched it and it seemed to be taking out the insects and dropping them to the ground; upon going towards the tree the bird flew away. I started to see what it had been doing that seemed so strange, when I found the cuckoo had been picking out the insects, pressing the juices out of the body and dropping the hairy skins to the ground. I looked further and the orchard seemed to be alive with these birds, each one intent upon performing the same mission. After watching for a time I was called away. At noon I again visited the orchard but could not find a cuckoo, neither could I find a caterpillar alive. Every nest had been torn to pieces and the entire host of insects destroyed. It is needless to say that this is one of the birds that we now hold sacred at my home.

ORCHARD ORIOLE.—This is another of the birds that should be put far up towards the head of the "star list" of beneficial birds. The orchard is its home. Here it marries, and among the branches of some thrifty apple tree, high up towards the top, the nest is made of green grass blades, and within this little home a brood of young ones is reared. They have not the color of the male, but rather for the first two years of life the general appearance of the female, save that in second year the young males have a black throat patch. Throughout spring and early summer they remain almost exclusively in the orchard, feeding almost entirely upon insects. Mr. Wideman tells us that they seem to have no desire for apples; a juicy pear is occasionally sampled, sometimes a few grapes are tasted, but not many were eaten. Cherries were favorite fruit and more of them were eaten than of any other kind. They spend much time among the grape vines, where they are very destructive to insects. In common with other members of the family they have a habit of inserting the bill in an object and by opening it, slitting the object. By this means they are enabled to obtain the insects in the cocoons, which would otherwise be out of reach. In late summer, after the youngsters can handle their wings well, when the insects of the orchard have for the most part been destroyed, save those in the apples, the entire family may be found among the corn fields and in the meadows, still pursuing the same relentless war upon the insects.

BLACKCAPPED and CAROLINA CHICKADEE, TRIFTED TITMOUSE, CAROLINA NUTHATCH.—These are the little birds we know best about home but who frequent the entire farm. They are busy little fellows who are with us the year round, whose lives are made up of good deeds.

CAROLINA WREN, BEWICK'S WREN, HOUSE WREN, WINTER WREN.—The mention of these names recalls at once the old place with all its sacred memories. At once the nest on the wood-house beam, or on the smoke-house brace, is

recalled to mind and with it thoughts of a pair of busy little brownish bodies, whose efforts were ever for our welfare and enjoyment.

The Carolina and Bewick's Wrens are confined in their range to the southern part of the State. The house wren is best known in the northern part and the winter wren in the colder months is occasionally seen, but passes its summer far to the north.

WARBLING VIREO is a sweet-voiced little fellow in drab clothes who frequents our lawns and orchards, from April to September, where his particular work seems to be to keep filled the mouths of four to six little fellows in a beautiful hanging nest. They have accepted as their portion of the farm work the task of keeping free from insects the smaller limbs and foilage of our fruit and shade trees. The yellow warbler is a companion of theirs, spending about the same time with us and sharing the same kind of work. Its beautiful color causes it to be easily recognized. Along the riverside are many forms, some peculiar, others representatives of more widely ranging kinds.

THE RIVERSIDE.

Upon the sand bars are plover, sandpipers and occasionally a heron. From the wide-spreading limbs of the sycamore and drooping branches of the elm are swung the pendulous nests of the BALTIMORE ORIOLE, the bird which wears the brilliant livery of Lord Baltimore and hence bears his name. They are found most frequently in the vicinity of water, where they lead lives similar to their orchard inhabiting relative. In the same trees may be seen on many limbs the nests of the BRONZED GRACKLE—the common blackbird. Investigations have shown that in States in our latitude throughout the greater part of the year or until late fall the principal food of these garrulous birds is insects; these doubtless many times pay for the corn eaten later. The BOBOLINK, so favorably known throughout the northern part of our State as a summer resident, a beautiful songster and beneficial bird, has another side to its history. It sails under other colors when away from the place of its nativity. With us it is the bobolink; as it goes south in the fall it becomes the ortolan, reed bird, rice bird, and in the West Indies, butter bird. The following words, taken from reports of the Ornithologist of the U. S. Department of Agriculture, may be interesting in this connection: "One of the most important industries of the Southern States, the cultivation of rice, is crippled and made precarious by the biennial attacks of birds. But the bird which does more injury than all the rest is the bobolink. To prevent total destruction of the crop during the period of bird invasion, thousands of men and boys, called "bird minders," are employed, hundreds of thousands of pounds of powder are burned, and millions of birds are killed. Still the number of birds invading the rice fields each year seems in no way diminished, and the aggregate loss they occasion is about \$2,000,000. Mr. Hazzard, a South Carolina planter, writes that they place a person with a gun to every four or five acres of rice and shoots from daylight to sunset. After all this expense the loss seldom is less than five bushels of rice per

acre. On his plantation are employed in the season about 100 bird minders, who shoot from three to five 25-pound kegs of powder daily, to which if the shot and cartridges are added, one may get some idea of the expense one planter is put to. The RED-WINGED BLACKBIRD with us has proven by its record that it is a valuable bird, but it also has another aspect to its character. What the bobolinks are to the rice growers of the South Atlantic coast the redwings are to the rice growers of Louisiana. Everywhere in the Atlantic coast rice-growing district, they rank second as to ravages, but here, on the gulf, they come first. One planter, speaking of these birds, says: "I have known rice crops to be destroyed to the extent of over 50 per cent. While this is an extreme case, a damage and expense of from \$5 to \$10 per acre is very common." The problem presented by these two cases is, does the good these birds do at the North offset the damage they cause at the South? If not, what is our duty?

One bird to which I wish to call your attention is the CAROLINA PARAKEET. These birds formerly covered much of our State, frequenting our river valleys, where in the fall they won the farmer's appreciation by their wholesale destruction of "cuckle-burrs." I make this tribute to their memory because they have now departed from us, and only live in the recollections of our older citizens, who know much concerning their habits and former distribution over the State, which should be written for the benefit of science.

HAWKS AND OWLS.—There are a number of kinds of hawks and owls found in this State. THE SPARROW, SHARP-SHINNED, COOPERS, RED-TAILED, RED-SHOULDERED AND MARSH HAWKS are the most common. THE SCREECH, BARRED, LONG-EARED, SHORT-EARED and GREAT HORNED are familiar to you. The impression at one time prevailed that these birds are largely injurious, but such is not the case, and many observing farmers have learned that fact. After pursuing investigations for several years, several independent investigators turned the results of their work over to the Government, where the investigations were carried on by the Ornithologist of the United States Department of Agriculture. Enough is known of the results of the work to prove that they are eminently beneficial. Of 1,072 stomachs examined, 89 were empty, 57 contained poultry, 20 game birds, 177 other birds, 528 mice, 137 other mammals, 51 reptiles and batrachians, 255 insects. Poultry was found in 3.6 per cent., and mice in 64.4 per cent.

The JAY BIRD is a bird which always reminds me of the meanest boy in a school, who no one likes or has a good word for, because he has no feelings, no respect, nothing but a cruel desire to torture other creatures and be generally hated. To some extent the bird deserves this, for they are known to have a great love for killing the young of other birds and for destroying their eggs. They are tax gatherers from our orchards and fruit farms, to a considerable extent. They destroy insects to some extent, but it is extremely questionable whether the good they do is sufficient to offset the other side of the account. The species should not be finally condemned until the evidence has been thoroughly collected and understood, but in cases where they prove themselves seriously destructive, stringent measures should be used.

YELLOW-BILLED WOODPECKER is in mild winters a winter resident with us in varying numbers. In severe winters they are not present, but during the autumn and spring are common. This bird is the typical "sap-eucker," and is the only one which should bear that name. They are very injurious to fruit trees, and to many trees on our lawns, especially the white and Norway pines, soft maple, and sugar maple. They perforate the trunks and limbs of trees, with holes arranged closely in circles, or in spiral lines, which girdle the trees completely, sometimes killing them, and often so weakening them that a heavy gust of wind will snap them off. Perhaps, did they spend the summer with us we might find something of value to compensate for their habits of destruction, but since they are but sojourners with us, we receive little good from their presence. The feeling concerning the robin in the South, is similar to this. The people down there winter them and fatten them, and claim they do them nothing but harm, hence they should kill them; but the robin has some value with them as a food bird, or as they might say, a game bird.

The **ENGLISH SPARROW** as we know it, properly the European House Sparrow, has had his hearing at court, and the verdict of guilty has been rendered. The United States Department of Agriculture has issued a very elaborate report

of the investigations which have been made, and I think any one may obtain it by writing for it. They are shown to be undesirable aliens, whose presence we may come to regret as much as that of certain foreigners who seem destined to propagate more of the evils of their civilization, or rather lack of civilization, than to be elevated by the uplifting spirit of liberty. The effects of the species to the horticulturist are shown. Grapes suffer more, perhaps, than any other fruit,

but apples, pears, peaches, strawberries, raspberries, blackberries, gooseberries and cherries are all prey to their omniverous appetites. They also eat many of the vegetables in our gardens, and are especially destructive to young pea-vines. Sometimes they have taken clean the greater part of a planting just after sprouts emerged from the ground. They feast upon everything that is fit to eat, seeming to be able to adapt themselves to the different portions of our country. They kill the young, destroy the nests, and drive off other birds, besides defacing shrubbery and buildings, and making of themselves nuisances generally. They occasionally eat insects, but it is not usual for them to do so, save, perhaps, to feed their young. In some States the species is deprived of protection and made an outlaw. In others a bounty is paid per head, while most of the States give it the same protection given native birds. Under our new law the English sparrow is unprotected, and in order that we may be prepared to distinguish it I am enabled, by the courtesy of Dr. C. Hart Merriam, Chief of Division of Economic Ornithology and Mammalogy of United States Department of Agriculture, to insert a cut of the male English sparrow. I regret that no cut of the female was available.

This brings me to the thought that the people of our State should demand that some provision be made by our laws for its exemption from the protection desired for native birds. In that connection I might call your attention to the fact that our present law does not protect native birds; it does not do what it was intended it should. Some of the species mentioned are not native, but rather are foreign, and many of our most beneficial species are not included. No provision is made for the scientific investigation of birds, with reference either to education or to their habits and foods, so very important to agriculture and horticulture. The desirability of a biological study, a study of the distribution, relationships and value of the animal and plant-life of our State, is, I think, undoubtedly very desirable. Other States have been amply provided for in this respect, but those interested in this State have not heretofore taken the matter in hand. The great objection has been the expense. But, really, do you think any reasonable expense would have been too great when the economic results are considered? At this time I am prepared, however, to suggest a way by which the results may be obtained at very little expense. The Indiana Academy of Science has presented annually, at its meetings, the results, in concise form, of the investigations of its members concerning the biology of the State, embodying the greater part of the year's investigations of a number of very able men, which may all be made available to our agriculturists, students and investigators if the State will appropriate sufficient money to pay for editing and printing them. The Academy would also plan its work to conduct a biological survey of the State, free of expense, save publication. May I not suggest that a resolution passed by this meeting, calling attention to the fact that our present bird laws are unsatisfactory, and would be of much better service if patterned after the excellent laws in force in some of our sister States, amended to suit our conditions.

Senator Urmston presented such a law at the last session of the Legislature, but it failed of passage, with a host of other bills. (The bill proposed was passed by the General Assembly at its last session, and is now a law.) It would be a credit to

our State, and a great benefit to all with whose business the birds are closely related, and indirectly to all the inhabitants of our State. The necessity for such action becomes imperative when we observe the records of the fearful destruction of birds for the purpose of decoration. Our higher feelings are aroused. We recognize the direct contribution of beneficial factors we are forced to make to popular clamor. We are shocked at the awful sacrifice laid upon the altar of fashion. A very suggestive article upon this subject, by Olive Thorne Miller, recently published, contains the following words:

"Consider how greatly the beauty and delight of nature depends upon those living and moving creatures. Think of

Flowers unvisited, mornings unsung,

Sea ranges, care of the wings that air swung.

"Conceive of the meadow, without its bobolinks; the dawn without its robin chorus; the twilight without the hymn of the thrush. Fancy the wood silent, empty of bird life; the shrubbery deserted by the yellow-bird and song sparrow. Picture the desolation of the glorious June with no voice to express it, no bird to set it to music."

Let us stand by our friends. See that they are given proper protection. Encourage a spirit of investigation, which will inform us of their actual relations to us, and arouse a sentiment in favor of enforcing the enactment of such laws when passed.

Mr. Charles Howland. I offer the following resolution, which the Secretary will read:

Be it Resolved, That we, the Delegate Board and State Board of Agriculture of Indiana, memorialize the Legislature of our State for the passage of an act which will appropriate a sufficient sum to pay for editing and printing the results of the investigations of the Indiana Academy of Science, concerning the plant and animal life of the State, which are so very important to the various industries of the State, and especially to agriculture.

Be it further Resolved, By the Delegate Board and State Board of Agriculture of the State of Indiana, that we memorialize the Legislature of our State for the passage of a law, modeled after those most effectual in several Eastern States, for the proper protection of native insectivorous birds, with special provision for their study, with relation to science, education, and their economic relations; and that we commend the work of the Indiana Academy of Science, looking towards the accomplishment of this result.

Mr. Howland. I move the adoption of the resolution, Mr. President. I am satisfied that ornithology has not been taught as fully as it should have been in the past, and I am pleased to know that the Academy of Science is making investigation in a direction that is going to do much good for us. I feel certain that any one who has a garden or an orchard, or who is raising plants of any kind, realizes that annually he loses ten

times the amount that would be required on his part to place this science in a position that it might be better understood by all people interested in agriculture and horticulture. It is plain to my mind, for I have discovered in my own orchard a certain scale that is affecting the trees, that we need something of this kind to afford us proper protection. I have further observed that the enemy of that insect that is so destructive is right now on the track and has relieved the trees of that insect that is sucking the very life-blood from them. You have also noticed it in the flower garden. You have seen your wife and daughters fighting this insect. Let us have an enactment that will help these workers. Let every one present vote for the resolutions.

Prof. Latta. When at an institute recently, I had the pleasure of listening to a farmer's wife making observations on the woodpecker family, and I thought if the farmers throughout the State had such definite knowledge of the birds as to know who were friendly and who unfriendly, they could give more intelligent attention to the birds and their proper protection. I happen to know that Mr. Butler is an indefatigable worker in this line, and I know of his work in booking the facts gleaned from all over this State, and I know he knows who the friendly and who the unfriendly birds are, and I am sure that through him we could secure some good legislation.

Mr. Lockhart. He speaks of the address delivered at Auburn, in my district. Mrs. J. L. Hind, the lady who has given the matter so much thought, recently wrote me a letter asking if I thought the Legislature would do something for the protection of our insectivorous birds. She wrote me to know if our organization had prepared a resolution for that purpose, but our organization failed to prepare a resolution. I think, as a farmer, there is nothing we can do of more interest to us than on this particular question. The roving of these hunters on our grounds, killing off the very birds that we wish to keep, is very damaging to us.

Prof. Huston. I suspect that Prof. Butler has, through modesty, omitted an important matter in this: The Indiana Acad-

emy of Science is made up of men standing very high in the line of workers to this end. These men are doing this work for nothing, and they are doing a work that bears fruit for the whole State of Indiana. These men do these things when, with the same amount of labor, they might be directing their attention to making money, but they are willing to do this for the people, that they may have the benefit of their work. The next thing is to have their work printed and transmitted to the people. These valuable papers are given to the people, and not alone to those who can come here and hear them, and I think it would be a good thing to have these papers published. They bear so directly upon the industries of this State.

Chair. What will you do with the resolutions offered by Mr. Howland?

The resolutions were adopted unanimously.

Chair. I will say now that that ends our specific program for to-day, but we have several papers here that are subject to the call of the Delegate Board. They are subject to your call, and you can have them at any time.

A Delegate. I would like to hear the paper on "The Money Value of Fertilizers," by Prof. H. A. Huston.

MONEY VALUE OF COMMERCIAL FERTILIZERS.

The only ingredients of a commercial fertilizer that may be said to have an appreciable trade value to the farmer are nitrogen, phosphoric acid and potash. It is true that there are other substances contained in the fertilizers that are useful in plant growth, such as sulphur and lime compounds, and in some cases compounds of the zeotite group that are of value in retaining fertilizing material, but the land would be of very exceptional character which was not already well supplied with these substances.

The farmers of this State have had over 100 different brands of fertilizers offered to them during the past year. With very few exceptions, these have been of good quality, and well up to their guaranteed composition. But because the material entering into a commercial fertilizer is of good quality, and the goods are as they are represented, it does not follow, necessarily, that it will be a good investment for a farmer to buy the goods. And this brings us directly to the distinction between the money value and the agricultural value of fertilizers. The money value may be very closely approximated from a chemical analysis, which shows the amounts of nitrogen, phosphoric acid and potash present. These three substances are articles that are in the market, and hence the cost of a pound of each

is readily obtained. From the analysis and the market rates it is easy to calculate the money value of a ton of any fertilizer. But while the money value may be thus obtained, the farmer needs to know something more, he especially needs to know the agricultural value—that is, the value of the increase of crops due to the use of the fertilizer. This can only be determined by experimenting on his own fields. Since the number of brands of fertilizers is already large, and continually increasing, it would be quite out of the question to experiment with all the different brands. Nor would it be best to approach the question in this way, even did this difficulty not exist. The simplest and cheapest way is to make field experiments with the separate ingredients that give value to the fertilizer. Until this has been done, the farmer is really working in the dark. It would be poor economy to add a heavy dressing of potash to land that already had enough of that compound, and so on with the other fertilizing ingredients.

In order to discuss the money value of a fertilizer, we must assume that the farmer knows what his land needs. Then there are presented for his consideration a number of brands of fertilizer, each containing the substances he desires to purchase. The question is, Which one is the most economical for him to buy? For example, we will suppose that he needs phosphoric acid and nitrogen, and that two samples are presented from which he may select. Now, there is given the analysis of each brand, and the trade values of each ingredient are known. From these he may calculate the sum for which he could buy the ingredients and make his own fertilizer.

Suppose the two samples have the following composition :

	LBS. PER HUNDRED.	
	1.	2.
Available phosphoric acid	13.47	7.94
Insoluble phosphoric acid	7.75	4.04
Nitrogen	1.82	2.00
Potash (K. 20)	0.00	0.00

Now, the market rate for available phosphoric acid is, say, 8 cents per pound; for insoluble phosphoric acid, 3 cents per pound; and for nitrogen, 17 cents per pound.

Now, one ton of these goods would contain :

	1.		2.	
	lbs.	lbs.	lbs.	lbs.
Available phosphoric acid	$13.47 \times 20 = 269.4$		$7.94 \times 20 = 158.8$	
Insoluble phosphoric acid	$7.75 \times 20 = 155.0$		$4.04 \times 20 = 80.8$	
Nitrogen	$1.82 \times 20 = 36.4$		$2.00 \times 20 = 40.0$	

Then the trade value of No. 1 becomes:

269.4 lbs. available phosphoric acid at 8c	\$21 55
155.0 lbs. insoluble phosphoric acid at 3c	4 65
36.4 lbs. nitrogen at 17c	6 18
Total	<u>\$32 38</u>

And for No. 2:

158.8 lbs. available phosphoric acid at 8c	\$12 70
80.8 lbs. insoluble phosphoric acid at 3c	2 42
40.0 lbs. nitrogen at 17c	6 80
Total	<u>\$21 92</u>

In these calculations we have assumed that the nitrogen was derived from organic sources of the best kind, such as dried blood, azotine or finely ground bone, and that the insoluble phosphoric acid is from ground bone. If it were from rock phosphate, it should be rated at 2 cents per pound. Nitrogen derived from less desirable sources should be rated lower.

Now, suppose No. 1 is offered at \$40.00 per ton, and No. 2 at \$26.00—

Then, $\$40.00 - \$32.38 = \$7.62$, or an advance of 19.05 per cent.

And, $26.00 - 21.92 = 4.08$, “ “ 15.70 “

These advances represent the manufacturers' and dealers' return for mixing, bagging, and freight and profit. Both the above brands may be taken as examples of the large class of nitrogenous superphosphates.

Ground bone occupies an important place in our fertilizer trade; as nearly as I can learn the price ranges from twenty-five to thirty dollars per ton. This would make the value of the phosphoric acid present in this bone from four to six cents per pound, according to the fineness of the bone.

In case fertilizers contain potash the method of calculating the value is the same, the rate for potash in the form of sulphate being six cents per pound of actual potash, and for potash in the form of muriate, four and one-half cents per pound of actual potash. Special and unusual forms of fertilizers are occasionally met with. Two of these have recently been discussed by Prof. Plumb in Bulletin No. 32, of the Experimental Station.

Prepared chemicals are sometimes mixed and sold directly. The impression naturally is that these goods have a much higher fertilizing value than the usual line of fertilizers.

Let us figure on one of these:

	Lbs. Per 100.	Lbs. Per Ton.
The analysis shows—		
Available phosphoric acid	5.41	108.2
Insoluble phosphoric acid	0.00	000.0
Nitrogen	0.83	16.6
Potash	7.59	151.8
108.2 lbs. available phosphoric acid at 8c		\$8 66
16.6 lbs. nitrogen at 17c		2 82
151.8 lbs. potash as sulphate at 6c		9 11
		\$20 59
Add 20 per cent. for expense		4 12
		\$24 71

This would be a full price for this sample, since the expense of mixing is relatively small. Now, it should be clearly understood that this method of calculating the value of fertilizers does not give any certain information as to what return may be expected from the use of any fertilizer. This return is the *agricultural value*. The money value is of service in protecting farmers against exorbitant prices, and in telling them which one of several samples gives him the most plant food for his money; while the analysis protects them from buying material not needed by them for their land, however valuable the material may be for other purposes or places.

There is no doubt that it is most desirable that fertilizers should be purchased for their agricultural value. This value can only be determined by experiment, and such experiments must include several terms. The returns yielded by any fertilizer depend on the quality of the soil, the ingredients of the fertilizer, the crop raised, the rainfall, drainage and other factors.

The above considerations of money value pertain only to the use of fertilizers for a single crop and season, but a farmer is supposed to hold his land as a permanent investment, and while the use of a special commercial fertilizer may be all right for a single crop, the first duty of a business-like farmer is to study the needs of his soil, and then adopt a system of crops and fertilization that will yield large returns and leave his land in good condition.

It is my opinion that three-fourths of the \$1,000,000 which Indiana farmers spend annually for fertilizers is wasted; not because the goods are of poor quality, but because the farmers do not know what their lands need, and hence pay for valuable fertilizing material for which they have no use. I believe that most of the lands of Indiana become exhausted of nitrogen long before the supply of phosphoric acid and potash are exhausted. On such land only nitrogen com-

pounds would be needed for some years. Now, suppose that a farmer used ground bone on such land. The ground bone will cost him, say, \$28 per ton. In a ton there are about \$8 worth of nitrogen and \$20 worth of phosphoric acid. If he had known the real need of his soil he could have utilized the entire sum for nitrogen, instead of spending \$20 for phosphoric acid, which will bring him no immediate return.

I have confined the discussion of the money value of fertilizers to specific examples, because the tables of different brands with their composition and relative money value are annually furnished to the Secretary for publication in the report of this Board. The question of money value of a fertilizer is only one part of the great problem of the relation of the farmer to his land. This question involves the system of cropping, feeding and fertilization, and the question of money value can only be fully discussed in connection with these subjects. I have therefore made this paper brief in order to give time for the consideration of any specific questions that those present may wish to advance.

DISCUSSION.

Mr. Smith. I would like to ask the Professor if for wheat there is anything better than finely ground bone with ammonia in it?

Prof. Huston. I would not ammoniate fine ground bone at all. There is no ammonia put in it at all. What is frequently done is this: The bone frequently comes from the glue factory, and that kind of bone is of the most excellent quality. It pulverizes easily and allows the soil to act on it. At the glue factory this nitrogen is taken out, and they put in dry blood to bring up the nitrogen, and they call it ammoniated bone. Don't buy a lot of stuff that you don't know whether you need or not. That you can find out by using phosphoric acid and nitrogen.

Mr. Smith. It is used very largely in part of the State, what they call ammoniated bone. It is called ammoniated bone, and it has stood highest with us as a fertilizer. I don't know anything about it, only what has been told us. We only know it by the brand—it is so branded. It has been very successful with us, so far as I have heard. We have used it and doubled, sometimes trebled, the yield. There is another thing about it that we have satisfied ourselves, and that is that it will last more than one year. We have put it into the ground, on corn

ground; we have drilled it into the ground, and raised a good crop on very poor ground. Then we tried it with oats, and you can see the rows by the higher oats.

Prof. Huston. I have made considerable inquiry concerning the kind of material used in the southern part of the State, and where it has been used in the southern part of the State on clay land it has been found successful; but I think you can work more economically in the matter. I think caution should be used, for while you may double your crop with this, if you can find a cheaper material and double your crop, it would be more economical. I do not think that because it doubles your crop you should say that it is the best thing in the market, when the same results may be had with less money paid out. I haven't found any great results on the farm from the use of any commercial fertilizer. In regard to the other point you speak of, the fact that it lasts more than one year, I would say that there is no question about it. That is the case with all fertilizers used. It may remain in the ground for years and show some results for a period of ten years, but it will not, of course, double the crop. I speak of the ground bone.

Mr. Davis, of Hamilton. So far as I know, in Hamilton County no manufactured fertilizers have been used to a very great extent. I would like to ask the Professor what essential such land as ours lacks to put on our clay land for a crop of corn to be followed by a crop of wheat.

Prof. Huston. The land may become exhausted, incapable of doing much by way of producing a crop. In Clinton County they tested with clover, and to-day these are the best lands in Clinton County. They had no commercial fertilizers, but were fertilized with clover alone. I wish the gentleman to understand that while I am talking on the subject of commercial fertilizers to-day, that I do not say they are the only ones—clover has fertilized clay lands, and bad clay lands—there is no doubt about that at all. Clover has the nitrogen supply. If we can get it up into the soil it is the best thing we can use in Indiana; there is no mistake about that. It is also the cheapest thing that can be used.

Mr. E. Howland. I wish to ask a question as to commercial fertilizers. Is not dry blood for cheapness next to clover? I believe we have to concede that clover is the cheapest, and dry blood next.

Prof. Huston. That would be only a source of the nitrogen. That must depend upon the true factors in the blood; and, secondly, how much you have to pay for it. I think it must be one of the cheapest commercial nitrogens in the market. There are all sorts of grades of that stuff. They will sell sometimes the worst grades of tankings for dry blood. I got hold of a lot from Ohio said to contain 14 per cent. ammonia, and it didn't contain ten—not more than half the amount claimed. I found out that the man who sold it stated that it was ammonium sulphate, and this man thought he was getting ammonia. The thing should have been sold not on a money basis, but on the amount of nitrogen in it. Probably the next cheapest source, where phosphates are required, would be the nitrogen contained in bone, which is about four per cent. of the bone itself.

A Delegate. I would like to ask of the Professor whether these commercial fertilizers, when used, afford any protection against insects—against the grub worms?

Prof. Huston. I do not believe they are a protection against them. The only thing I have seen on this point is from a report sent from Kentucky, and they say it had an effect on the grub worm. I inquired into the matter and found that it was a mixture that came from Cleveland, O., called sludge acid. I wrote to the Cleveland parties to ascertain whether it could be had, and they replied that no more sludge acid would be sent out.

Prof. Wiley. This fact has, no doubt, impressed every one that nature bears in her own products fertilizers that are better than manufactured fertilizers. Take, for instance, potash, one of the most common fertilizers, and which is produced in the mines in Germany in inexhaustible quantities. But none of these minerals act so happily on the lands as the wood ash. Many very valuable fertilizers are found in organic form, as in

the albumenoids, in blood, etc.—I may add in bones—and these seem to be particularly suited to fertilizing, while the others do not seem to be so well suited to the growth of plants as those of organic origin. We should take into consideration whether they are of organic or mineral origin. If you take bone and grind it and apply it to the soil, it seems to apply itself at once; but if you take this Carolina rock and grind it and put it to the soil, it takes a long time for the soil to take hold of it. These organic phosphates seem to take hold more quickly than the mineral. The origin of the fertilizers has much to do with their money value.

Prof. Huston. The fertilizers from organic compounds is a thing I have been figuring on. The question in economy is, whether we should not feed these things to produce fertilizers. I presume that not much attention is given to that, because farmers do not realize the fertilizing value of some of our crops. For some time corn has sold for less than the fertilizing material in it is worth. It has been sold for 18 cents, and the fertilizing material in it is worth 23 cents. The fertilizing material in a bushel of wheat is 33 or 34 cents. These questions do not come up to be considered much now, but these questions will present themselves, whether we would not better feed to the cattle and put it back into the land in that way.

Mr. Furness. Upon what basis do you make that estimate—that 23 cents value?

Prof. Huston. It is for the nitrogen, the phosphate and the phosphoric acid.

A Delegate. I will say that I think this matter of commercial fertilizers is of very little importance—that they, rather, are of very little value. I have had the same experience that the Professor has had. I have found but very little in them, while in clover I have found a great deal. It is a question with me whether I can afford to haul out barnyard manure in comparison to plowing under clover. I think I may do it more cheaply in this way. I have hauled it all out, but I have, as a matter of fact, come to the conclusion that by turning under the clover I can fertilize my land more cheaply than I can by

hauling the manure out of my barnyard, and I do not know why we should give attention to this matter.

Prof. Huston. I will tell you why you are doing a wise thing to haul out that manure from your barnyard. You have land which has plenty of phosphoric acid, but it is deficient in what is in the clover. It needs that. If you didn't manure it, it would only be a question of time that you would need something with the clover—something that the clover would not supply. While you can not, perhaps, see the immediate necessity of it, yet you are making one of the best investments that you could make by hauling that manure from the barnyard. A peculiar case came to my attention from Cambridge City, in this State. A gentleman wrote me that his land was a market garden, that it was in an extremely high state of cultivation, and yet he said he could not get anything to make it grow his products. He said he kept putting on barnyard manure, and tried all kinds of commercial fertilizers, and he finally tried nitrate of soda, and he told me that the land on which he put the nitrate of soda held up wonderfully, while the other land was dead. He put so much barnyard manure upon it that it had robbed it of the nitrate of soda. Now you can not convince that man but that nitrate of soda is the most valuable fertilizer in the world. You see in special cases there are special fertilizers. He had that land in an unusual condition. In the matter of your land I think you have done very wisely, but you think that the only thing that is necessary is the clover.

A Delegate. I would like to say something about Alsace clover. I find that it is better than any clover that I can find for wet land. It will grow where other clover will not grow. We found some growing on a marsh. That is one of the good features of Alsace clover.

J. B. Smith. There is a gentleman back here who sticks to fertilizing against clover on the ground that without fertilizer, in some parts of Northern Indiana, we can not raise clover, but by fertilizing the land we could get a crop of clover, and then we would put down the clover.

JANUARY 8, 10 A. M.

The convention was called to order by Vice President Nelson.

Chair. As there seems to be nothing before the house we will now listen to the address of Mr. C. L. Hall, of Michigan, on the

DAIRY INTERESTS OF INDIANA.

There was not in the State of Indiana, I believe—I am so informed—a practical modern creamery up until the first of last year, in April or May. One was started at Columbia City, the first practical creamery upon the new centrifugal separator system established in the State. I believe the old method has been somewhat tried in the State and proved a failure, and it proved a failure because it is not adapted to this locality, because it is not a success anywhere when the firms do not put up ice and have facilities during the summer to produce their cream in the best condition. The system should never have been adopted; it is little, if any, improvement on the old method. There is now in a state of construction, or under contract, or contracted for, and now working, twenty-three new centrifugal creameries, all but one established by Davis & Rankin, of Chicago, and we hope that in another year there will be more of them, and we believe that they will be successful, and that they will solve this problem: How are we going to make our farms pay? I have been riding around among the farmers of this county, Hancock County and Shelby County, for the last four months, and I have heard but one farmer in all my travels that claimed he has made a dollar in farming for the last two years. There have been from Hancock and Shelby counties farmers who visited the farmers in the Elgin District, where this centrifugal system is used, and they say they found them all making money. This Elgin butter is quoted as the highest in the market—on top. They have been visiting the farmers and spreading themselves out visiting these factories, and a large number of the farmers of these counties have gone there with committees to investigate, and they return home and report unanimously that the average return per cow is about \$55. They are not pleading poverty, but are making their money by dairying. The great State of Indiana is in the geographical center of the dairy district of the United States, and the only practical districts at present are feasible dairy districts on the Western Hemisphere; and yet here in Indiana we have the least product per capita of any State in it. With her cheap lumber for building stables, the cheap fuel in her natural gas, her great agricultural area, it does seem that she should be practically what she is geographically, the heart and soul of the dairy district and the dairy interests of these United States, and I expect to see it. Indiana is not behind in her strides for improvement and advancement, and I believe her people will see their own interests as they are, and will take hold of this matter in earnest. I never felt—although the son of a farmer—I never felt intelligently competent, or physically competent, because I was always tired (laughter), to assume

the responsibilities of a farmer. Here is the thought that has always been heavy with me: What an awful thought that not a human life or a human enterprise in existence but traces back for its sustenance and success to the product of the soil, and to you, the tillers thereof.

Then when the farmer says: "Well, I have got where I have seven or eight hundred acres, or twelve hundred," as one said to me the other day, "and I don't care about accumulating any more, and all I care about now is to take care of what I have and leave it to somebody else in the future," I really wonder where he expects to go and what his answer will be when the Great One asks about his stewardship. He is but the steward and must give an accurate account of his stewardship. Because he was born on that land and because he holds title to it is no reason why he should be an incumbrance thereon. That land belongs to me, and to you, and to every man that lives under the flag of the United States, and he deserves a living thereon—not because of a warranty deed, but because of that truth that every human life is entitled to a living, and because his living traces back to that soil, and it is the duty of that steward to make it produce the largest possible amount without detriment to it. Therefore, I say that a man who has accumulated a large amount or has inherited a large amount of land, and lays back and says: "I don't care now, I will just leave it as it is," and doesn't take care of it, but lets it go to ruin, I say that man has become an incumbrance to the soil, and the people ought to turn out liberally when he passes away and give him a good funeral.

I do not blame the farmer for not attempting to dairy when the market is out of his reach, and there are so many useless middle men between him and the market. Now, if we are going to encourage the dairy interests, it becomes necessary to look into the matter and see how it can be best advanced, and how we can best get the largest amount for the least labor without detriment to the soil. I do not know how I can illustrate that better than this: Down here in a little town where I was stopping, I discovered that there was a grocery there in that little town which sent out through the country three huckster wagons, peddling their groceries and buying and trading for butter, and buying turkeys and chickens, as you know these hucksters do, and they would put that butter into the wagon and drive on through the country, perhaps for days, letting this butter take up the odors from the coops—this offensive odor that passes from the turkeys and chickens. It is brought to the grocery finally, there overhauled by the grocer, and afterwards brought to the commission men, and is there purchased by the retail grocer, and then probably overhauled again by fifty or one hundred customers before it gets upon the consumer's table. This is done to-day in this country—in winter, summer, and fall. Do you think your wives would recognize this as the beautiful butter they turned from their churns? If you should go to the city and buy back that same butter, wouldn't you say: "That's not my wife's butter. It looks different. It didn't look that way when my wife let go of it."

That system of dairying is not encouraged—it should not be. There are a large number of farmers around the cities that can fix up with home utensils—home dairying utensils—and do what this man Snider says: Make a twenty dollar profit on the cow. The only way to make this business a success is to place your-

selves in a condition to strip this business of these useless middle men, and reach directly to the export market. It is the surplus product, for the surplus product of all crops controls the price of the whole. Even if you were making here, or at your little town, 200 or 300 or 500 pounds of first-class, Elgin butter by the Elgin system, the factory should belong to you, the farmers co-operatively charging 3 or 4 cents per pound, according to what it would cost to make; and when the New York buyer says it is worth 30 cents, you can say it is worth 30 cents here, less the fraction of a cent for shipping it. By doing this you can put aside the middle men.

A Delegate. I would like to ask a question for information. I have heard of an experiment where the soil had been weighed and corn raised on it, and then the soil weighed again, and there was no diminution in the weight of the soil. Where would this sixty pounds of weight come from when the grain was removed?

Mr. Hall. I don't know that I heard the full question.

Delegate. I saw a statement recently where an experiment was made, where the soil had been weighed and corn raised on it, and then the soil weighed, and there was no diminution in the weight.

Mr. Hall. That is beyond my depth. You can see grass grow, but you don't know how it grows. But I know this as a practical fact, that it takes the strongest soil on earth to produce wheat year after year for twenty years. Many things change, but are not destroyed. Soil, by raising wheat, is not destroyed, but is robbed of some of its elements. If the earth was sowed in wheat for one hundred years and could be weighed, it might weigh as much as it ever did, but you would know that it had reduced the soil.

Delegate. I mean to ask whether the soil would be reduced sixty pounds?

Mr. Hall. I meant that in feeding the cow the soil was replenished by manure.

Prof. Latta. This practical fact is not understood in a theoretical answer. This gentleman has answered this in a practical way. Every farmer knows that the growing of a crop hurts the soil, of course. This question asked is misleading and does not state the fact. We know that there is a minute

portion of ash, and that portion of ash has come from somewhere or something. Has it come from the air? No! It has come from the soil. In explanation of this question that has been propounded here, I will simply say this: That the water that may have been added to the soil during the growth of the plant upon it may have contained more ash than it required. He doesn't tell us whether the soil was absolutely dry. A small per cent. of water in it would account for the difference. The amount of ash is extremely small. The compound of the plant is simply sunshine bottled up, but there is a minute portion that comes from the earth.

A Delegate. I would like to ask for a little more information. I have often heard the Elgin creameries spoken of. I was told by one of Mr. Armour's men that on the day Mr. Cleveland signed the oleomargarine bill, that they shipped down a large amount of oleomargarine.

Mr. Hall. I don't know of a pound of butter being made in a creamery with any neutraline or other adulteration in it. I don't know of it.

Mr. Charles Howland. It is a matter that don't concern me or anybody else particularly, whether ten feet square of rich ground weighs any less than ten feet square of poor ground. I suppose you could get ten feet square of very poor ground that would weigh less than ten feet square of very rich ground. The question is outside of the issues, but the main question strikes me as being of vastly more importance than any other question before our meeting.

While there may have been questions of very great importance, this strikes me as a something that the farmers of Indiana can look forward to with a degree of hope that the time is coming when this everlasting complaint of not making anything as farmers, will have to cease. Now, I speak thus from what little experience I have had. I was going to say that I am living with a woman that is a practical butter maker. Of course I do not wish to detract from those who do the work. I will say to you that you may travel all over this country, and you may go to any farm house where the wife is a practical,

intelligent butter maker, and you will find a family with a table well supplied with all the essentials in the eating line, and her children comfortably clothed, and every essential necessary to happiness as far as earthly interest is concerned, provided she has not got a hog of a husband. I know this, and I have not, perhaps, learned as much from books as some men, but I have from observation. Some don't learn any other way; but it is better to learn it this way than not at all. I know this to be a fact, that dairying, where rich food is fed to the cow in order to bring about the best results in milk, in cream, and in butter, that the land on which this dairying business is carried on must necessarily become richer and richer every year. I have no acquaintance with the gentleman who has given us this most excellent address, but I am glad that I met him this morning, and that he is in harmony with the best business we can follow to keep our land in condition, as God gave it into our hands, and if we keep on in this matter, we will never hear of poor land, and we will never know of the time when we can not pay reasonable taxes and support our families properly.

Mr. Dugan. I have been very much interested in this paper. I was one of a committee that visited the dairy districts of Elgin, Ill., and I had the pleasure of talking with a great many farmers who were selling their milk to these creameries located there. All of you knowing anything about the dairy districts of Elgin, Ill., know that they are scattered all over the country. A great many told me there that they could not make a living without cows. Some men told me they could not pay their rent without dairying; and I think myself that the farmers and agricultural men of Indiana are losing a great deal by not investigating this industrial interest. It is said of the sheep that they come up twice a year and pay their bill. Did you ever think of old Brindle, any of you? She not only comes up twice a year, but twice a day, and gives the farmer a product—a product that is worth something. It is small, 'tis true, but think what it amounts to in the course of a year. Some gentlemen in my own county have been dairying on a small scale. We have no creamery there; I wish we had. They have told

me what their cows produced in milk and butter in one year, and they placed it at \$70. This is from actual figures. As our friend observed about keeping a steer, he might have added the cost of keeping a horse; we have to keep them until they are three or four years old before they can be put to use. It is feed, feed, and no return; and I do think it is high time, gentlemen, that the farmers of Indiana were beginning to wake up on this important subject of dairying.

A Delegate. It seems to me that if we were all to go into the dairying business, the price of butter would be lowered like the prices of our other products. Is it not probable that the business would be overdone?

A Delegate. I would say that good butter has sold for less this year than for several years past. It looks like it wasn't a paying industry. Is that not so?

Dr. Parsons. You are all aware that I did not come here to talk about butter, but I am fortunate enough to have a home in a butter-making State—a State having some reputation for butter-making—and this talk about butter and soil is one which very much interests me. The question about the weight of the soil is a theoretical one, but there are many practical problems to be solved, and the farmers should think as intelligently as the professional man. We have men in Wisconsin who have set about the problem of how to get the most out of farming. I know of one gentleman in particular, Hiram Smith. He debated in his mind what to do to make farming profitable, and he concluded that dairying made the best showing, and he went about to ascertain how to get the best price for butter, and he fell upon the plan of dairying 20, 30, 40, 50, 60, perhaps 80 cows, and he reached such complete success by this determination, that he concluded he would go into the business, make an extra fine quality of butter, butter that would bring a good price when he could find a market for it. He made arrangements at the Plankinton House that they would take from him all the year round. They gave him 25 cents a pound all the year round; and, taking all the matters into consideration,

Hiram Smith found that he could only reach complete success by study, determination and hard work. He always kept his cows in a cleanly condition; made his own creamery; looked carefully after the offal, with which he manured his lands, and he died a rich man. Indiana has as good resources as any State in the Union to make good butter. In Michigan, Wisconsin, Ohio and Iowa, where I go, the farmers are asking of scientific men to show them the way out, and yet I am compelled to eat butter so strong that when I stand before a friend he would ask what I had been eating, my breath smelled so bad. But these farmers went into the butter making business, and they determined that they would make good butter, and they did. They learned the use of ensilage, which the farmers' institutes brought to them, and you never hear them complain now that they are not making money, and their children are well educated and cultured, and you find in their houses pianos and other musical instruments, and all they want to eat, and you will find in almost every instance that dairying has taken them out of this. I can look back into Wisconsin and their very faces will come before me. I mostly buy dairy butter for my own table use. When I buy other butter I know that the farmer is the kind of farmer that was spoken of—one with that kind of a wife that makes butter and takes care of it, who doesn't put it into the cellar with beets and onions—but it comes to me fresh and right. I believe I can challenge any of you to go into the country with me, and show me a man that has gone into the dairy business, and who has been in a few years, who has not made money. The supply of butter is not half enough of what you call good butter. A farmer who has a good farm should feel that he owes something to the world; he should feel that he has a great duty to perform. If he has a thousand acres, as has been suggested by the gentleman who read the last paper, it is his duty to make the most of it.

A Delegate. Lest we should all run off into this one idea, I want to give you the experience that we had in our county. A few years ago we got the idea that we could make fortunes in

the dairying business, and in our county we built three creameries and cheese factories, and after running them for a time, every one of them failed. We commenced, in the first place, paying a dollar a hundred for milk, and while the price of cheese and butter kept up, we could pay that. The market literally failed on us, and it broke up every one of them. It may have been a lack of intelligence on our part, or may be the lack of something else; but I think the trouble came about the time that oleomargarine came in. They got to making that so cheap that we could not make butter in the ordinary way and compete with it. I do not know how persons may have done in other parts of the country, but in our particular locality it was a failure. I do not know what butter is worth, generally, over the country, but I know that it is very cheap with us. This year, in our county, it has been only 10 and 12 cents per pound, and if the gentleman on my right can make butter and sell it at 10 cents and 12 cents, he can do better than I can.

Dr. Parsons. I will say that our people still are following the Elgin process—on the individual plan.

Mr. Chas. Howland. I wish to say that we don't sell our butter at ten cents a pound, and I don't want to buy any butter at ten cents a pound; and you won't find a butter-maker around the city of Indianapolis that don't get twenty-five cents a pound—or thirty cents—for good butter. We take it to our grocer and get twenty-five cents for it, and they will take all we send. You need not be afraid of overstocking the market. If you can't get more than ten cents per pound, you don't make good butter. That has been my experience after forty years. If it will hold good forty years, it will hold good 160 years. As we progress there is a greater demand for butter. As men become more intelligent and have better tastes, they develop a good taste for butter—for better butter; and I say to you, gentlemen, that good butter will always command between twenty and thirty cents a pound, and I can bring you fifty men in Marion county that get that price. At the houses they get twenty-five or thirty cents, and at the grocery twenty cents.

A Delegate. I just want to reply to what the gentleman has said. That is true around these large cities. His prices are correct. I am speaking of when you are away from the cities. I think that we make first-class butter—as good butter as Mr. Howland can make, or as anybody else can make—and first-class butter is sold at ten and twelve cents a pound, and there is no market for it at that.

Prof. Latta. I would like to hear from Mr. E. L. Furness on the dairy business, whether it is profitable.

Mr. Furness. Mr. President, I am something of a cow-boy. I hardly like the idea of a Professor drawing me out on my hobby. I had the pleasure of meeting you here last spring, and I said then all I can say about the subject. I think there is a great deal of truth on both sides of this matter. We must know how to make the best butter, and we must also understand how to get rid of it. I would like to ask Mr. Hall a question. I would like to ask from what standpoint he delivered his remarks. I understood him to say that he was the son of a farmer. I would like for him to tell us from what standpoint he delivered his paper.

Mr. Furness. Are you a dairyman?

Mr. Hall. No, sir.

Mr. Furness. Are you a farmer?

Mr. Hall. No, sir.

Mr. Furness. Are you in the employ of Davis & Rankin?

Mr. Hall. I am, and I am not ashamed to admit it.

Mr. Furness. These facts are necessary for us to understand, to know what underlies this article. I come before you as a farmer, one who all his lifetime has milked his own cows and made his own butter. A number of years ago I concluded that I would change my methods of farming a little, and I figured up what I ought to do, and what plans I should pursue. Our house lies right snug to the railroad station, and I thought that would be a good chance for shipping. So I went to work on that plan. I consulted my wife about the matter, and she rather sat down on my plan. "Well," she said, "you will get the cows for the business, and you will not get the market for

your milk; and when it comes to the butter-making question, I will have to stand in the breach." But I spoke up bravely and said: "If it comes to the butter-making, I will do that myself." "Yes," she says, "but people will come to see you, and I will have to take care of it." Well, when I got into the butter market, there wasn't any great demand for it, and a few of my friends that were taking our butter wanted it badly, and I went to work making butter that would speak for itself; not as the gentleman (Dr. Parsons) spoke about, but I tried to put some conscience in the matter—conscience sprinkled with a little brains—the more brains the better. [Laughter.] I finally got a market for it among some of the dealers at Michigan City, who said they would take it at 25 cents. I supplied these folks with butter, and I was anxious to hear what they had to say about it. I wanted them to say it was good butter. I began to get a more extended market for my butter—I might say that I had a contract to furnish these parties a certain length of time—and I think the time was to last about two months longer, when I went to them and asked them to let me off the balance of these two months. They said: "Come around in the afternoon." I told them that I could now get 30 cents for my butter, but didn't want to ask them to let me off at a loss. I finally said to them that I would give them \$10 if they would let me out of the contract, and they said: "No; not for a hundred dollars." And I said: "You don't make that much profit." They said: "No; but we have established a good trade on your butter." They said that it was worth all of that hundred dollars in securing their other trade. I supplied these people without a skip or a miss with butter all the time, until after awhile the firm got into trouble in the summer, when butter was selling for 10 cents a pound, and the market full of it, and they told me they had put their matter into the hands of another party, and that they could not use my butter any further. I now felt a little blue. I met a friend of mine about that time, and he asked me how I was, and I told him that I was a little blue, and I told him the reason for it, and he said: "Send the butter to me." It made me feel considerably better.

In the middle of the summer I got 25 cents a pound for it. I have been making butter ever since, and we get 30 cents a pound for nearly all of it and 60 cents a pound for some of it: There is a good deal to be said on this subject. This is the rosy side, and the best side of it. I do not believe that every one is qualified to go into the dairying business, and I am afraid that if we drop everything else and go into this line, the market may, perhaps, be overstocked. I can tell you a little experience. I held my customers right along, and they gave me the highest price; but a year ago two or three of them discontinued their orders, and I wondered what it meant. We were making as good butter as we had ever made. I went to see one of these customers—he was a Chicago man—and I said to him: “You are not sending for butter now. Wasn’t the butter all right?” He said: “Yes; but the family ate too much of it; and a brother of mine is getting right good butter delivered to his house for 25 cents a pound, and if we can save that money we should do it; but we like your butter better.” Of course, I didn’t like to say anything after he said this. I didn’t think it was any use to see the other parties. Shortly afterward I took a street car and met a gentleman I knew, and he said: “Well, how’s the butter business?” I told him. He said: “Well, I like that butter, but my wife’s brother-in-law is making butter, and he is selling it for 23 cents a pound, but we found it wasn’t as good as yours.” And he renewed his order, and I got him back again. I do not believe I am getting as much for my butter as I ought to get. I think I should get more, and I believe I can get it. It requires a great deal of time and care to make good butter. It is impossible to get the kind of help that is necessary. The most delight I see in the dairying business is to make a good article. I do not love the business, but I love to accomplish it in the most thorough and scientific manner possible. A man has to take right hold of it to make it a complete success. He must make it a study and be thoroughly interested in it. He must make a study of feeding the cows.

A Delegate. Will not it pay with mixed husbandry?

Mr. Furness. Yes; we must join other things with it. You and I must supply the brain, and instead of attending to the milking, we must get somebody else to do that.

Mr. Lockhart. I would like to make a report of the committee on the question of the Farmers' Reading Circle.

To the State Board of Agriculture:

GENTLEMEN—Your committee appointed to consider the question of forming Farmers' Reading Circles beg to report:

1. That we believe such reading circles can accomplish great good; that they can be organized and maintained in the rural districts all over our State; and that the State Board of Agriculture, as the promoter and guardian of the educational and material interests of the farming population, should lend its sanction and active support to this movement.

2. That we recommend the appointment by the State Board of Agriculture of a permanent committee of five, to be known as the Board of Management of the Indiana Farmers' Reading Circle; that said committee be instructed to formulate and submit at the February meeting of the State Board, a full plan of the work to be conducted by said committee under the auspices of the State Board, and that such plan include the method of organizing and constructing local circles, course of reading, text-books, with price-list, and an estimate of the probable expenses of the Board of Management in conducting the work, so that the State Board may then act advisedly in considering the possibility of carrying the project into execution.

We recommend that the necessary expenses incurred by this committee of five, in preparing and submitting its report, be met by the State Board of Agriculture.

Respectfully submitted,

R. M. LOCKHART,
JOHN B. CONNER,
J. A. MOUNT,
W. C. LATTA,
C. A. HOWLAND.

Mr. Lockhart. I think Mrs. Meredith should be placed upon that committee, as she represents the State of Indiana in its educational interests.

Prof. Latta. This committee is simply to do the work necessary to be done before the February meeting, when the State Board can take full action in the matter. There must be a new committee to do the permanent work. The committee appointed only acted for the present meeting.

A Delegate. It occurs to me that there should be a committee appointed. I say appoint the same committee that made up the old committee and add Mrs. Meredith.

Prof. Latta. I beg you to substitute Mrs. Meredith's name for mine.

Chair. Would it not be the sense of the convention that Mrs. Meredith's name be added by consent?

This was done.

Judge Wilson Morrow delivered the following address on

LAWS PERTAINING TO AGRICULTURE.

The subjects submitted to me are agriculture and laws pertaining thereto. Law, in its general sense, is a "rule of action." Agriculture, comprehensively, includes the cultivation of the ground for the purpose of producing vegetables and fruit for the use of man and beast, the art of preparing the soil, sowing and planting seeds, dressing the plants and removing the crops, gardening, horticulture, raising and feeding stock, etc., but in a more common and appropriate sense it is used to signify that species of cultivation which is intended to raise grain and other field crops for man and beast. But it is evident that it was not intended to open to me such a wide field of investigation as the subject given above properly embraces, however pleasing, and I doubt whether it is intended to embrace any of the above, but, more properly, you only desire of me a brief statement of the municipal laws now in force in Indiana in which agriculturists are directly interested, such as estates, titles, boundary lines, fences, weights and measures, roads and highways.

We have no law limiting the quantity of land to be owned by any one person, and such a law in our country, perhaps, is impractical, but we think it will be generally conceded that less acreage and better cultivation would greatly enhance the profits of farmers. I give it as an opinion that the agricultural lands of our State do not produce, on an average, to exceed 33 per cent. of their producing capacity. If, then, a farm of 50 acres can be made, by proper fertilizing and cultivation, to produce as much as 150 acres under our present system of farming, is not the proposition of less acreage and better cultivation worthy of great consideration?

ESTATES.

Fee simple, life estates, and estates for years are the common estates with us. Tenancy at will can only be created under our statute law by express contract. All other tenancies are by law, from year to year, unless fixed by express contract for a longer or shorter term. Tenancies may be created by occupancy with the

consent of the landlord. In renting land much care should be taken in fixing the time and duration of the tenancy. Much trouble and litigation has resulted, and is likely to result, from indefinite terms of renting. Where the time for the determination of a tenancy is specified in the contract, no notice to quit is necessary.

Three months' notice is necessary to determine a tenancy from year to year. All tenancies which are from one period to another, of less than three months' duration, a notice equal to the interval between such periods is required to determine the tenancy.

Upon default in payment of rent, ten days' notice will determine the lease.

A fee simple title is the highest estate known in our law.

Common law dower estate is abolished. A wife has an estate in fee simple of one-third in all lands of which her husband dies seized, as against other heirs, and all lands sold at judicial sale. There is one exception to the above rule of descent which is peculiar to our Statute, and which is not well understood. That is, where a man marries a second wife, having children by a former deceased wife, but none by his second wife, the land, which at his death descends to his second wife, shall, at her death, descend to his children.

TITLES.

Too much care can not be exercised in the examination of titles. A vender should be required by law to furnish to the purchaser a complete abstract of his record title. A purchaser should take the opinion of a careful lawyer upon such abstract before he accepts the deed.

Our form of conveyance is very simple. More error occurs in the description of the thing sold than in all other parts of the conveyance. A careful recorder of deeds will probably detect informalities in its execution, but will not probably detect fatal errors in the description of the land intended to be conveyed. The description of the land conveyed should be so definite and certain as to enable an officer of the law to identify the land from the description alone. Every owner of real estate should have the boundary lines of his land well defined and marked, and the descriptive part of his deed accurate. This once well done will answer for all future conveyances.

WEIGHTS AND MEASURES.

Our State law has fixed certain and definite weights and measures to be used in agricultural commerce, and made them a legal tender on all contracts for sale of grain, seed and other articles in said act named.

The following weights (avoirdupois) shall be given and taken as a standard bushel :

Wheat	60	Lbs.	Corn on cob	68	Lbs.
Shelled corn	56	"	Buckwheat	50	"
Oats	32	"	Beans	60	"
Potatoes	60	"	Clover-seed	60	"
Hemp seed	44	"	Blue grass seed	14	"
Castor beans	46	"	Dried peaches	33	"
Dried apples	25	"	Onions	48	"
Salt	50	"	Coal	80	"
Timothy seed	45	"	Rye	56	"
Barley	48	"	Cornmeal	50	"
Cranberries	33	"	Millet-seed	50	"
Orchard grass seed	14	"	Malt rye	35	"
Middlings, fine	40	"	Middlings, coarse	30	"
Osage orange	33	"	Parsnips	55	"
Pop-corn	70	"	Sweet potatoes	55	"

Sorghum molasses, 11 lbs. to the gallon.

Hay, 2,000 lbs. to the ton.

Beef and pork, in each barrel, 200 lbs.

Flour, in each barrel, 196 lbs.

HOW TO MEASURE CORN IN CRIB, HAY IN MOW, ETC.

This rule will apply to a crib of any size or kind. Two cubic feet of good, sound, dry corn in the ear will make a bushel of shelled corn. To get, then, the quantity of shelled corn in a crib of corn in the ear, measure the length, breadth and height of the crib inside of the rail; multiply the length by the breadth, and the product by the height; then divide the product by two and you have the number of bushels of shelled corn in the crib.

To find the number of bushels of apples, potatoes, etc., in a bin, multiply the length, breadth and thickness together, and this product by eight, and point off one figure in the product for decimals.

To find the amount of hay in a mow, allow 512 cubic feet for a ton, and it will come out very generally correct.

The above are not statutory rules, however.

FENCES.

Railroad companies are required by law to construct sufficient fences on either side of their roads, and keep the same in good repair, and to construct cattle guards at public road and highway crossings.

"Any structure, hedge or ditch in the nature of a fence, used for the purpose of an enclosure, which is such as good husbandmen generally keep, and as shall, on the testimony of skillful men, appear to be sufficient, shall be deemed to be a lawful fence" in our State.

PUBLIC ROADS AND STREETS.

A way open to all the public is a highway. "Highway" is a generic name for all kinds of public ways, including county and township roads, streets and alleys, turnpikes and plank roads, railroads, tramways, bridges and ferries, canals and navigable streams; in short, every public throughfare is a highway. It is my purpose in this paper to treat of such highways as are known as roads and streets, and to further limit myself to the public use or travel on roads and streets, believing it will be more beneficial in the space allotted to me to treat of one subject in which farmers have an every-day experience, than to attempt to cover the whole subject of highways in one short paper. A road is a passage ground appropriated to public travel. A public way through the country may be designated as a suburban road for public use, while a public way in a town or city may be called an urban way or street. In the former public travel is almost the only use which can be made of it, while the latter may be devoted to many other public uses.

TRAVEL ON ROADS AND STREETS.

In order to prevent collisions and to secure the greatest degree of safety and freedom from interruption to travelers on roads and streets, it is necessary that certain rules be observed by all who use such ways. A custom or system of rules regulating travel upon highways has grown up, which may properly be called "The law of the road." And we now will proceed to consider the duties of travelers to one another under the law as it exists in the United States.

The first and most important rule is that, in meeting, each party should bear or keep to the right. This rule is not, however, an inflexible one, for there may be circumstances requiring one to keep to the left in a particular case. Courts will take judicial notice of this custom in the absence of a statutory rule on the subject. Travelers should exercise prudence, good common sense and ordinary civilities in the use of highways. Emergencies may arise when, in order to escape from danger to one's self, or to prevent injuries to others, it will not only be excusable, but proper to depart from the general rule. A horseman or light vehicle should give way to a wagon heavily loaded, and, if due care requires it, the latter should stop while the lighter vehicle passes. A person driving across a road or street is bound to see that he does not obstruct public travel. One who violates the law of the road by driving on the wrong side of the way assumes the risk of all such experiments. But the mere fact that one is on the wrong side of the road, in violation of the law, does not excuse another from the exercise of ordinary care to avoid a collision.

The second general rule relates to the duty of travelers in passing when both are going in the same direction. The only rule of general application that can be laid down is, that he who attempts to pass another going in the same direction must do so in such a manner as may be most convenient, and, if danger results to the person passed, the former must answer for it, unless the latter, by his own willfulness or carelessness, caused the disaster.

All persons have a right to walk in a public highway, as well as to ride or drive upon it—their rights are equal, and both footmen and drivers are required to exercise such prudence as circumstances demand. "The law of the road," in its strict sense does not obtain with respect to footmen. They may meet and pass on either side, exercising due and reasonable care. Accidents to footmen usually occur at crossings. It is the duty of persons who are driving over a crossing for footmen to drive slowly, cautiously and carefully. And it is also the duty of footmen to exercise care in going upon a crossing.

Driving at an immoderate and dangerous rate of speed upon a much frequented street or road is culpable negligence. Transporting articles over the highway, which are of an unusual character and likely to frighten horses, without giving warning to travelers, reckless and noisy driving, whereby another horse is frightened and caused to run away, will constitute actionable negligence. There may be a criminal as well as a civil liability for injuries caused by fast and willfully reckless driving.

A person who drives upon a highway must use due care to keep his harness and carriage in good road-worthy condition.

When a horse runs away by reason of the negligence of the owner, or is turned loose in a road or street of a populous country or city, creates culpable negligence.

Travelers, whether on foot or in carriages, have a right to stop a reasonable time by the roadside, but this right must not be exercised in an unreasonable manner, so as to interfere with the rights of other travelers, as is often done.

It is not unlawful to drive cattle along the road, but one who does so must use due care to avoid injury to others.

Steam and electricity may be used as a motor power on our highways, but one who undertakes to drive along a highway an object or animal which, from its appearance or noise, is calculated to frighten horses, should take proper precaution to warn travelers and prevent injury.

The invention of the bicycle has brought into use a new means of locomotion which has already given rise to much litigation. It may be taken as well settled that it is a vehicle and may be properly used upon our streets and roads, but not upon sidewalks, especially where the law prohibits driving or riding upon the sidewalks. Bicycles are subject to the "law of the road."

Natural traits of character are often made manifest in persons using our roads and streets, sidewalks and crossings. Human nature has a variety of phases which an observant traveler may readily see. Common courtesy, proper respect for the rights of others and care in the exercise of one's own rights, are highly commendable among travelers everywhere, and by every mode of travel. It is an instinct of each cultivated nature to yield proper respect and deference to lady travelers, yet it is not demanded that she shall have all of a sidewalk, both sides of a road or street, or a whole seat in a coach, to the discomfort of other travelers. Lady riders and drivers on our roads and streets are subject to the "law of the road."

ABUTTERS

The owner of land abutting upon a highway has, in addition to his right as a member of the general public, certain peculiar rights as an abutter. The presumption is that the proprietors adjoining on each side of the road own to its center. As such owners they have the exclusive right to the soil, subject only to the easement of the right of passage in the public, and the incidental right of property fitting the way for use. He may sink a drain below the surface of the road, carry water in pipes under the way, if proper care is used in covering it. The herbage and trees growing thereon belong to him, unless needed to repair the way. He may rightfully plant ornamental shade trees within the lines of a highway, provided the public use is not thereby obstructed. The abutter has all the ordinary remedies of the owner of a freehold, subject only to the public easement. But should the way become suddenly obstructed by fallen trees, wash or otherwise, so that a traveler can not pass along the road, the latter may enter the close of the abutter in order to pass around the obstruction, provided the obstruction can not be readily removed. In the latter case, however, he should remove the obstruction rather than enter upon the adjoining land.

The only servitude imposed on the land over which a road passes is the right of the public to construct and maintain thereon a safe and convenient roadway, which shall at all times be open and free for public use as a highway.

DRAINAGE.

This subject must receive very brief notice. We have a statute law upon the subject of drainage, the cost of which to be paid from assessments on land benefited thereby; but it must appear that such drainage will improve public health, benefit public highways or be of some public utility. Natural streams, and even surface water, in a measure, are allowed to flow in a natural course, for it seems to be a violation of individual rights to so obstruct either as to throw a large quantity of water upon the land of another.

As important a question as under-drainage is, the agriculturist seems to be left to seek an outlet as best he can.

There should be a statute law providing for the right-of-way for under drainage through adjoining lands, where necessary, for outlets, upon equitable terms.

While education is not strictly embraced in the subject of "Laws Pertaining to Agriculture," yet a skillful use of agricultural implements, a knowledge of the natural laws involved in agriculture, and practical observation and experience in cultivating the soil, are so important to successful results in farming as to almost justify the suggestion of enforced education in an agricultural district. There is enough in farming to engage the best minds and culture, notwithstanding the oft repeated statement that farming only requires physical strength and endurance, which latter idea is causing our brightest young men to leave the farm and seek more honorable positions in towns and cities. We must check this tendency with more educational and better social opportunities in an agricultural district.

DISCUSSION.

Mr. Johnson. I think it is the most educational paper that has been brought before this association. I think the Judge said we must get the solid contents in feet, and then divide by two and get the corn.

Judge Morrow. You didn't understand me.

Mr. Johnson. Here is a rule I got from the Cincinnati *Gazette* for obtaining the amount of shelled corn in a crib: Obtain the solid contents of your crib in feet—in solid feet; multiply by 45; then divide by 56; then divide by 2 to get the amount of shelled corn.

A Delegate. Sometimes the corn would be thrown in loosely, and sometimes it would be laying close together; that is, the ears would fit into each other. It don't take up twice as much room as shelled corn, and the bigger the crib the less it will occupy. All experienced farmers know that when they shell out a lot of corn amongst the ears of corn until it fills all the space, they can take out an ear of corn and that shelled corn will pretty nearly fill the space. About the best thing you can do is just to make a compromise of it.

Mr. Peed. My friend, Mr. Johnson's, calculations are correct: It is the size of the cob, however, that determines it. I think the Judge's calculations are about right, if you grow the right kind of corn.

Mr. Dungan. I have a special report I would like to offer:

REPORT OF COMMITTEE ON PREMIUM LIST.

Your committee to whom the premium list was referred beg leave to offer the following suggestions for your consideration:

First. That rule 7, Live Stock Department, be so changed that exhibitors may secure stalls or pens before their stock is on the ground.

Second. That a Superintendent of Stalls be appointed, whose duties shall be prescribed by the Board.

Third. That in all classes for beef and dairy breeds a sweepstakes award be given on bull and four of his get, either sex, one to be under 1 year old, to be bred and owned by exhibitor.

Fourth. That in all cases of beef and dairy breeds a sweepstakes award be given on cow, with three of her produce, either sex, one to be under 1 year, to be bred and owned by exhibitor.

Fifth. That a sweepstakes award be given to beef breeds by ages.

Sixth. That a sweepstakes award be given to dairy breeds by ages.

HORSE DEPARTMENT.

Seventh. That in all classes where stallions are shown a sweepstakes award be given to a stallion showing four of his get, one to be a suckling.

Eighth. That in all classes a sweepstakes award be given to a brood mare showing three of her colts, one to be a suckling.

Ninth. That in class 18—saddle horses—stallions be included.

Tenth. That a sweepstakes award be given, by ages, to the draft breeds of horses.

Eleventh. The same on general purpose horses.

Twelfth. The same on light-harness horses.

SHEEP DEPARTMENT.

Thirteenth. We recommend a class for Hampshire Down sheep; also for the Horned Dorset sheep.

MINORITY REPORT.

The chairman of committee would beg leave to submit a minority report, to the effect that in all distinct breeds of horses and cattle a herd prize be awarded, in place of sweepstakes award by ages, as recommended by committee; also for imported and home-bred sheep.

All of which is respectfully submitted.

S. W. DUNGAN,
Chairman.

MARION STEELE,
Secretary of Committee.

Mr. Sieg moved to refer the report to the State Board proper.

Mr. Howland. I hardly think it is the best proceeding. These gentlemen have come up, and they are just as good as the State Board. I think these things ought to be talked about and submitted to the greatest number of the good citizens of the State of Indiana, and I believe, for one, that the delegation should make some recommendation at least. In regard to the recommendation as to premium and the classes on sheep, I know there is a thing that comes very near to a good many exhibitors of sheep—that is, the class of imported sheep—that is,

two classes, the imported and home-bred sheep. It has been my observation that all the premiums heretofore taken, or at least in a great measure, they have been taken by imported sheep. Why it is I can't say.

Chair. The question is now whether they shall be referred.

Mr. Howland. I was giving my reasons why it should not be referred.

Chair. Those in favor of the reference of the paper without any further discussion will please say aye; those opposed, no.

Chair. I believe the noes have it. What disposition will you make of it?

Mr. Howland. I move that the majority report be received.

Chair. That would be in the nature of a substitution of the minority report. Is there a second.

A Delegate. Yes, I will second that motion.

Chair. It has been moved and seconded that the majority report be accepted.

A Delegate. I think the offspring in exhibiting a brood mare should be the proof.

Mr. Lowry. This committee talked this matter over, and we talked about reporting that way. We thought of limiting the matter to three, and not less than that number. We aimed to limit the number to not less than three. In case of stallion it should be four, and not less than four.

Mr. Peed. There is quite a hardship in that. We have a good many good brood mares that have not produced colts. The mare that produced but one colt should have a right to show one colt. Let them show as many as they have. It would be unjust; it would exclude some good young mares.

Chair. Those in favor of accepting the majority report will please say aye, and the contrary, no.

The majority report was accepted.

Adjourned.

AFTERNOON SESSION.

The meeting was called to order at 1:30 p. m., with Vice-President Nelson in the chair.

D. L. Thomas, of Rush County, submitted the following paper on

CLOVER VS BLUE GRASS—THEIR RELATIVE VALUE.

Nothing delights the soul of the average Kentuckian more than to sound the praises of the famous "Blue Grass Region." Who ever met a "Corn Cracker" who did not hail from the vicinity of Lexington? They would impress you that model specimens of the equine and bovine species must be produced on Kentucky soil.

When you are impressed with the teaching that blue grass is the *summum bonum* in animal production, then along comes the Britain, who claims the highest type is indigenous to English soil. This leads to the inquiry whether the claim for the superiority of blue grass is based upon demonstrated fact, or is a mere incidental assumption, growing out of the fact that the farmers of the "Blue Grass Region" for a time more carefully developed cattle and horses than was common in other localities.

It may seem like presumption to attempt to pull down an idol at whose shrine so many bow. But this practical age demands that every theory must stand or fall in the light of rigid investigation. And the pet theory in question must be subjected to a scientific test.

After studying the chemical analyses of the clovers and grasses and of the elements of animal bodies, made by the late Prof. Bousingault, Sir John B. Laws and prominent scientists of our own country, I have become skeptical of the "blue grass" theory.

In animal production bone and muscle play a conspicuous part. Lean meat is fancied above fat for food; muscle is absolutely essential for speed in the horse, and stout bone is indispensable to carry the flesh of animals for food and to give strength and endurance for work and extreme physical exertion.

Of the sixty kinds of clover said to exist, I wish to notice the red and alsike varieties. The following table, evolved by analytical chemists, will show the food elements of clover compared with timothy and blue grass.

	Red Clover.	Alsike Clover.	Timothy.	June or Blue Grass.
*Albuminoids	19.42	18.33	11.32	10.38
Carbo-hydrates.	45.29	35.00	56.94	45.65
Crude fibre	26.47	36.67	26.49	38.04
Ash.	8.82	10.10	5.25	5.93
	100	100	100	100
Fat	4.11	3.23	3.61	2.62
*Containing nitrogen	2.91	2.75	1.70	1.56

This table gives the analysis of the food elements calculated without water, showing simply the nutriment which each contains. The table shows that the albuminoids, i. e., the nitrogenous or flesh-forming elements in the two best clovers in general use is seventy per cent. greater than in timothy and blue grass.

"This is a very important consideration in the growth of young animals. If the elements of the ash of these clovers are examined, it will be found that a given weight of clover contains more of the phosphoric acid and lime to make the bone, and more of all the mineral elements required to grow the animal structure than timothy or blue grass."

"Clover contains in excess those elements that are deficient in the straw of the cereal grains. Not more than three per cent. of albuminoids or flesh-formers is contained in the straw of wheat, oats and barley, while there is eight per cent. in the best clover hay."

A ton of clover hay mixed with a ton of straw will form a combination with more than ten per cent. of the flesh-forming matter, which will make it equal to timothy hay. That is, a ton of clover properly mixed with a ton of straw is equal in feeding value to two tons of timothy. And blue grass has not quite as high a feeding value as timothy.

Corn fodder has more of the bone material than blue grass, and nearly half as much of the flesh-forming element.

Clover, then, is one of the most indispensable crops in successful stock-raising. For it is very rich in all the elements required for the growth of young animals. Its nutritive value stands higher than the grains, except peas. It makes a good winter feed alone, but is better supplemented with a little corn.

It is well known that stock grows rapidly on clover pasture. As the plant contains the same nutriment when dry, it makes a most desirable winter food. The swine and cattle develop bone, muscle and general growth rapidly on clover. It is excellent for both as winter food.

The once popular fallacy that starving colts and "freezing out" in winter is the way to make trotters has been exploded. But it doubtless has had its effect in helping dwarf the trotting-bred horses, and arm adversaries with the "spindle-shank" argument. It is well known that the stunting process has developed all

kinds of scrub stock. We boast of blooded stock, but neither chemistry nor the lens of the microscope can detect any difference in the blood of different kinds of horses. The same is true of other classes of live stock.

But there is an inherent and unseen quality in blood, which permits careful feeding and management for successive generations to evolve different breeds and types. Yet, chemically considered, the blood is the same. How important then becomes the problem of feeding animals.

And if trotting-bred horses are to be persistently raised on blue grass, or any other slow-growing process, they are doomed to be a small type of horses, which are not desirable for general use nor for market. It is right on the line of scrub development.

But blue grass is not to be discarded by any means. For early and late pasture and feeding lots, it is most valuable. It simply has been given too much importance in producing live stock.

Clover is the only crop which at the same time fertilizes the soil and produces food. It comes nearer a perfect ration complete within itself than any other crop. It can be most cheaply produced. It is both a summer and winter food. It develops most rapidly and economically the whole animal structure, furnishing the most nutriment to build bone and muscle. And when cut and wilted for hay, it can be cured in cocks with caps at a nominal cost, thus obviating all objectional and preserving all its good features.

Then, in the light of science, blue grass is relegated to a second place, and clover is pre eminently crowned the farmers' forage crop, and it being so well adapted to our soil, Indiana, is destined to take precedence over Kentucky as a stock-growing State.

DISCUSSION.

Mr. Seig. I would call your attention to the fact that there is no provision made for holding an afternoon session of the Delegate Board.

Chair. It is from 9 this morning until a motion is made to adjourn.

Mr. Jones. There is considerable business to be transacted. As you are aware, the old Board has to come back and attend to considerable business, and it seems to me that this Delegate Board should have adjourned to-day, which was undoubtedly the intention.

Mr. Lockhart. I take the ground that inasmuch as we have invited different parties to come here and prepare papers before their coming, we should hear them. We have other work to be done. I move you, therefore, Mr. Chairman, that this Delegate Board continue in session until its work is all completed

This motion was seconded and carried unanimously.

E. L. Furness, of Furnessville, submitted the following paper:

THE AGRICULTURAL SITUATION.

A great deal of wisdom would be requisite to intelligently consider or discuss the meaning of the existing agricultural situation. While there is no question that farming is the foundation industry, essential in its office of supplying food, upon which food life and human activity depend, there is, unfortunately, a question as to the degree of comfort and prosperity of the farmer himself.

Can farmers have, and do they have, a proper share of life's comforts? If they do not, why do they not?

There, probably, never was a time in the memory of any one present, when the condition of farmers was considered entirely satisfactory, or when there was not a loudly expressed complaint as to their hardships. There have been many fluctuations of better or of worse times, but never, perhaps, a time when, taken as whole, there was general satisfaction and admitted prosperity. Farming to-day not altogether prosperous, and the probability is that it never will be; that could be contrary to the rule of experience. It does not really matter so much whether farmers are doing better or worse than others, or whether they are doing better or worse than before, but it does matter materially whether they are doing as well as they ought now.

We may concede at once that they might, and ought to, do better, and we shall not make a great mistake if we say that their doing better depends very much, if not mostly, upon themselves. There are very many eminently prosperous farmers to day, and the inducements for farming were perhaps never greater in the rewards offered in the way of comforts, culture, social position and wealth, but in looking over the general field one can not fail to see that the many toil without adequate reward, whatever the cause or causes may be, and enlightened philanthropy seeks to put in motion proper means to change this state of affairs for the better. It is no new thing in the world's history that hardship, toil and misery abound, and, to the sufferers, it may be a heartless and worthless saying, that "God helps those who help themselves."

To those who help themselves in farming, there is nothing startling in the announcement that the present is a good time for farming, and that the farmer who is not doing well has reason to mistrust himself and his methods rather than the situation. It is indeed quite true that legislation is needed, both State and National, to give the farmer better opportunity, and it is undoubtedly that farmers, from their numerical strength, if they will unite, and from the justice of their claims, can compel this legislation. The beginning of the effort should be to decide what is wise and judicious, and then demand it. There are many crude and vicious measures advocated that if enacted into laws would be harmful, but these need winnowing out from the good and beneficial, and to do this will require time as well as labor. Evolution and development are very slow but sure processes, and one who sees wrongs which he would have righted becomes impatient, if not disgusted, at the delay.

Every one can, however, set at work immediately in individual improvement, and in this lies very much, if not the most, of hope and promise. I am a farmer, making my living (and somewhat more) by farming, and the questions that concern farming concern me—they are vital to me.

Prices of beef, pork and wheat have been very low for a long time, and are low to-day. That is enough to cause the agricultural depression which is making itself so generally and so sharply felt. I think I see the causes of these low prices, and I believe prices will again be higher, when the farmer's situation will improve, but in the meantime what shall be done to keep up the farm revenue? I find there is a fighting chance yet—even wheat, hogs and beef have some profit in them by good management. Speaking of myself, I am giving more and more thought to improving the farm, the way or ways of farming, increasing fertility and the yield of crops, cheapening cost of operations, trying to farm larger areas at less expense, doing all things, the little as well as the greater, more thoroughly, more profitably. I have to do this, and by actual experience it is proving a success. It leads one to be more interested in farming, and to discover somewhat of its great possibilities. I believe I am becoming more of a farmer and less of a politician (perhaps more of a Statesman). I see, at least, less need of special legislation, becoming somewhat of a law unto myself, and there does not seem to be a great deal of oppressive legislation, although a great deal that needs changing and improving. I hardly know whether electing United States Senators by direct vote of the people, instead of by the General Assembly, would help me greatly, but I am certainly afraid that hostile measures against the National banks would be very unwise, and would disastrously disturb business relations, from which farmers would materially suffer. Business and business men can not be prosperous without making better markets and better prices for farm products.

It is possible that I may yet become indifferent as to whether the tariff is voted up or voted down, although at present I believe decidedly in favor of protection to American industry.

The American farmer ought to be successful, if there be any chance for financial success in farming, comparing his condition and his opportunities with any and every other farmer on the face of the globe, nor is his condition unfavorable compared with any and every other person, whoever or whatever he may be. He has a stable and beneficent government, of which he is a potential and integral part; he is not called upon, ordinarily, to do military or police duty; he is not taxed heavily to support large armies or navies; he owns his farm and can cultivate it as he pleases without dictation of landlord, nor be hampered by restraining laws; he has, especially in Indiana, a good climate, without often recurring great disasters; a good soil, with power to make it steadily better; a wonderful and complete variety and diversity of crops and resources available from one end of the season to the other, so that he can have something to sell every month, if not every day in the year, if he so pleases and so plans to do; he has good markets (and ought to have good roads and conveniences to get to them), where everything will sell for cash; he has good social and educational privileges for himself and his family; can worship God according to the dictates of his own conscience; pay little, or much, or nothing in support of church or minister. What more need be said?

What taxes he pays are supposed to be, and should be, mainly for his own benefit, giving him good government, good schools, good roads, and contributing to the support of the feeble and infirm. There may be some reckless squandering of money which should be and can be corrected, and yet the fact remains that there is very little money, if any, which the farmer pays out that gives him a better equivalent than that which he pays out as tax (and over which he is generally more disposed to grumble). Saying all this, however, does not change the evident fact that the system of taxation needs revision as a matter of equity and of justice to the farmer. Unduly magnifying evils and belittling benefits is not a wise course to pursue. Work, and hard work, both of brain and hand, are a necessity, and a blessing too; but it is hardly necessary for the intelligent and thinking farmer to-day to be a drudge he can not afford to be, the means are at hand in the shape of machinery, horse power, steam power, to lighten physical toil, while making more demand for mental power. The progress of the times is disturbing, if not upsetting the relations of things, and calls for new methods, profits have to be found in new and unusual lines, and he who can not change with the times will be left behind, with no recourse left but to charge his misfortune upon those who, by progressive energy, bring about the changes; but the tide of progress and improvement can not be stayed; it will go on forcing all, even the laggards, to keep at least in sight of the procession.

The promise for the future is great. Organization of the farmers is rapidly taking place; it is called the great awakening, and well it may be; it is a good thing; organization is good, meeting in council is good, discussion is good. Congress and Legislatures are recognizing the farmer's claims, and are doing something in his favor, and are manifesting an anxiety to do more. It is for farmers to see that right men are sent as law-makers, and soon may be expected, judging from the present upheaval, the domination of the farmer in politics, the day of bribery and demagogues should come to an end. There may be a fear that the awakening giant in his new-found strength may give the pillars of the old temple a too vigorous shaking, even for his own safety, if directed by blind zeal rather than by reason, but I do not know of any in whom the destinies of the country would be safer than the farmers, when they once get seriously down to business.

Farmers' benefit means national benefit, and not injury to any class, but prosperity for the whole people. There is no justice in charging the agricultural depression to the malicious action of other classes, be they merchants, manufacturers, bankers, middlemen or carriers. We can not afford to admit that we are kept down by others, and farming can not be built up on the ruins of other industries.

The glory and strength of our country lies in the great personal freedom that every one has to realize to his fullest capacity his highest aspiration. Every one is at liberty to devise and execute the grandest scheme his brain is capable of concocting, either for his individual good or for the good of the dear people. It would not be well to restrict this liberty, although for the time it may seem to give the *one* person advantage over the *whole*; but one can not gain without the whole being benefited eventually; time sets things right, and it is public policy to endure a short-lived evil rather than to hamper enterprise or energy. Many of our public benefactors are denounced because they secure large rewards to themselves, while

bestowing great good upon the public. It is for the interest of the public, as demonstrated by experience, to encourage invention by giving the inventor a monopoly for a limited time of an idea or a plan that is his by force of skill or foresight, or physical or mental energy. While there is much said about monopoly, as if it were a bloodthirsty and terrible giant in the path of the people, there is very little of it in this country. A railroad can hardly be said to be a monopoly so long as it is subject to having another one built alongside of it in competition, or while its stock is on the general market free to the purchase of every one, and the same may be said of most of the manufactories. It takes brain power, effort, and close application to successfully operate a railroad, a factory, a store, bank or farm; there are successes and failures with all of them. It is said that sixty-four per cent. of all the railroad shares do not pay dividends, which is a worse financial showing than farming would make. I very much doubt if there is a better investment for immediate profit to-day than a well-managed farm, and the promise is that in a very short time farming will be far ahead of every other industry. The figures of the late census show that the increase of the population in the last ten years has been in the towns and cities, and that the rural population is not much more than it was ten years ago. With this true, and other things in its favor, consumption will soon overtake production; the logical consequence will be higher prices for food products and better times for farmers and farming.

James Riley, of Thorntown, read the following paper:

CORN IS KING.

Corn is by far the greatest product of American agriculture, and its improvement the most neglected. Farmers will pay large prices for improved hogs, cattle, sheep and horses, but pay little or no attention to the improvement of corn.

All but our best improved breeds of hogs, cattle and sheep have been brought to their present standard of excellence by careful selections in breeding and feeding. Now, that corn can be improved as much as live stock has been clearly demonstrated. There are several methods of improving corn. One is the old and tedious way of selecting the best ears in the field in the fall. The objections to this method are, we have no certainty in the product of those selected ears. In the field are a large number of barren stalks and those that are imperfect and diseased with smut. These imperfect stalks furnish pollen that becomes mixed promiscuously all over the field, and although we may select a fine, well proportioned ear, we have no certainty how the germ of all the grains on this ear are produced.

A large number of the grains on the ear may be fertilized with pollen from a barren or diseased stalk. Therefore there is no certainty or system in this method of improving corn, but I propose to give a plain, practical method of improving corn, that every farmer could and should practice.

Every farmer should have from one-eighth to one-fourth of an acre and make it very fertile by the application of the best fertilizers, so as to develop the corn as near to perfection as possible. Then select enough ears to plant the plot as nearly

uniform and as near the type we wish to raise, just the same as in selecting breeding stock, then plant and cultivate thoroughly, and as soon as the tassels begin to appear, go through the plot and cut out all imperfect and diseased stalks. In this way we secure a pedigree of corn, as we know to a certainty that all the grains are properly fertilized. Then select the best ears from this plot for planting the crop, and a few of the very best ears for planting the little plot again.

It is very desirable to have the ears as nearly perfectly developed as possible, with grains perfectly filled out over the tips of the ears. This can be done by leaving every fourth or fifth row in the plot when the plot is first planted. Then plant every other hill in this row from one week to ten days after the first were planted. Then in a week after plant the remaining hills, or another good plan is to plant four hills when the plot is first planted and leave two hills, then four hills and leave two. Then in a week plant one of the hills left, and in two weeks the remaining hills. This plan will more evenly distribute the replants over the plot.

The object of this replanting is to keep up a supply of pollen to insure a complete fertilization of all the pistils or silks on the ears. If the plot was planted all at one time and the silks and tassels all appear within a few days the pollen will dry up and blow away before the pistils or silks from tips of ears become fertilized, and we have one-half inch of cob at the tip of the ear with no grains on it.

The grains at the base of the ear send out their pistils or silks first and are fertilized. Then the next grains, and so on, up the ear to the tip, and these come out last.

No doubt many farmers have observed the outer silks dead, while the center silks were still green. These are the pistils or silks from the tip grains and the new tassels coming out from the replant keeps up a supply of pollen till all these silks become fertilized, thus securing ears with grain perfectly filled out over tips.

In selecting a variety to commence the improvement, I think it best to select a variety that will be sure to mature perfectly every year when planted in proper time. A very large corn, although it may yield a few more bushels per acre, is not the most profitable for several reasons:

First. A very large ear usually has a large cob and is late in maturing. Such corn, when put in the crib, although it may seem dry on the outside, there is so much moisture in the cob that the germ will be soured so it will not grow. This detracts from the feeding quality of the corn. The germ is the richest and most nutritious portion of the grain, and when the germ is sound and sweet, stock of all kinds relish it more, and its feeding quality is much more profitable.

Second. Very large corn usually has a large stalk. Such corn will very rapidly exhaust the soil, as it takes much more nutriment to grow a large stalk than a medium-sized one. We should therefore select medium-sized corn with as small a cob as possible, and a very deep meety grain. Yellow corn should have a uniformly red cob, and white corn all white cobs. A corn that will yield the most shelled corn per acre and the least per cent. of cob is the most profitable.

DISCUSSION.

Mr. Furness. I would like to ask Mr. Riley a question. Do you exterminate smut by washing?

Mr. Riley. No, sir.

Mr. Furness. Have you ever tried it?

Mr. Riley. No, sir; I have never tried it.

Mr. Mitchell. I would like to ask Mr. Riley a question. Some of the wheat men claim that they can get a good wheat from this farm and another from that farm, and by mixing get a good variety. Do you claim that by mixing the seed corn you can get a better variety of the same varieties from different farms?

Mr. Riley. No, sir; I don't believe that it is best. I think that we should keep our seed corn as strictly apart as possible.

Mr. Mitchell. You don't understand me. I don't mean mixing the variety—I mean the same variety.

Mr. Riley. I never have tried that.

Mr. Howland. Don't you find some varieties of corn more prolific than others?

Mr. Riley. Yes, sir.

Mr. Howland. How do you mend the matter?

Mr. Riley. When you find a lack of ears, do you mean?

Mr. Howland. Yes, sir.

Mr. Riley. I would not try to get more than one ear. I think my plan is a very good one. I cut out every barren stalk, and maybe in a dry season I cut out nearly half of them. I leave nothing but a perfect tassel and a perfect silk. I weed out the sucker and the smut.

Mr. Furness. Do you say that you are troubled with smut?

Mr. Riley. No, sir; I am not. I have not been for several years.

Mr. Furness. I believe I will send to you for seed corn.

Mr. Riley. All right.

Chair. We will now hear from Mr. Force.

Mr. Force. I desire to say that I will not be able to respond to my part of the exercises this evening. I was to deliver an address, as the programme indicates, and I should have been highly pleased to have responded, but I have been away from home and have had no time to make that kind of preparation which I would like to make, although I am deeply interested in the work.

Mr. Lowry. I now move you, Mr. President, that the Delegate Board do now adjourn *sine die*.

Carried.

INDIANA STATE FAIR---1890.

Premium Awards.

CATTLE.

THOMAS NELSON, Superintendent.

CLASS I—*Shorthorns.*

Bull, 3 years old and over, T. S. Moberly, Richmond, Kentucky	\$25 00
Second, E. S. Frazee, Orange	12 00
Bull, 2 years old and under 3, Thomas Wilhoit, Middletown	25 00
Second, T. S. Moberly, Richmond, Kentucky	12 00
Bull, 1 year old and under 2, Thomas Wilhoit, Middletown	25 00
Second, John T. Dye, Indianapolis	12 00
Bull, under 1 year, T. S. Moberly, Richmond, Kentucky	20 00
Second, John T. Dye, Indianapolis	10 00
Cow, 3 years old and over, Thomas Wilhoit, Middletown	25 00
Second, Thomas Wilhoit, Middletown	12 00
Cow, 2 years old and under 3, Thomas Wilhoit, Middletown	25 00
Second, Thomas Wilhoit, Middletown	12 00
Heifer, 1 year old and under 2, Thomas Wilhoit, Middletown	25 00
Second, Thomas Wilhoit, Middletown	12 00
Heifer, under 1 year old, T. S. Moberly	20 00
Second, Thomas Wilhoit	10 00
Number of entries, 35.	

Committeeman—B. R. Pierce, Creston, Illinois.

CLASS II—Herefords.

Bull, 3 years old and over, Parkhurst & Son, Franklin	\$25 00
Second, Parkhurst & Son, Franklin	12 00
Bull, 2 years old and under 3, G. W. Harness & Sons, Galveston	25 00
Second, Parkhurst & Son, Franklin	12 00
Bull, 1 year old and under 2, Parkhurst & Son, Franklin	25 00
Bull, under 1 year old, G. W. Harness & Sons, Galveston	20 00
Second, G. W. Harness & Sons, Galveston.	10 00
Cow, 3 years old and over, Parkhurst & Son, Franklin	25 00
Second, G. W. Harness & Sons, Galveston	12 00
Cow, 2 years old and under 3, G. W. Harness & Sons, Galveston	25 00
Second, G. W. Harness & Sons, Galveston	12 00
Heifer, 1 year old and under 2, G. W. Harness & Sons, Galveston	25 00
Second, G. W. Harness & Sons, Galveston	12 00
Heifer, under 1 year old, G. W. Harness & Sons, Galveston	20 00
Second, G. W. Harness & Sons, Galveston	10 00
Number of entries, 18.	

Committeeman—B. R. Pierce, Creston, Illinois.

CLASS III—Polled Angus.

Bull, 3 years old and over, Leslie & Burwell, Cottage Grove, Wisconsin . .	\$25 00
Second, G. W. Samuel & Sons, Wappetta, Illinois	12 00
Bull, 2 years old and under 3, Leslie & Burwell, Cottage Grove, Wisconsin.	25 00
Second, G. W. Samuel & Sons, Wappetta, Illinois	12 00
Bull, 1 year old and under 2, Leslie & Burwell, Cottage Grove, Wisconsin .	25 00
Second, John J. Cooper, Indianapolis	12 00
Bull, under 1 year old, Leslie & Burwell, Cottage Grove, Wisconsin	20 00
Second, Leslie & Burwell, Cottage Grove, Wisconsin	10 00
Cow, 3 years old and over, Leslie & Burwell, Cottage Grove, Wisconsin . .	25 00
Second, Leslie & Burwell, Cottage Grove, Wisconsin	12 00
Cow, 2 years old and under 3, Leslie & Burwell, Cottage Grove, Wisconsin .	25 00
Second, G. W. Samuel & Sons, Wappetta, Illinois	12 00
Heifer, 1 year old and under 2, Leslie & Burwell, Cottage Grove, Wisconsin	25 00
Second, Leslie & Burwell, Cottage Grove, Wisconsin	12 00
Heifer, under 1 year old, Leslie & Burwell, Cottage Grove, Wisconsin . . .	20 00
Second, John J. Cooper, Indianapolis	10 00
Number of Entries, 48.	

Committeeman—B. R. Pierce, Creston, Illinois.

PREMIUM AWARDS.

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CLASS IV—Galloways.

Bull, 3 years old and over, Brookside Farm Co., Ft. Wayne	\$25 00
Second, S. P. Clarke, Dover, Illinois	12 00
Bull, 2 years old and under 3, Brookside Farm Co., Ft. Wayne	25 00
Second, S. P. Clarke, Dover, Illinois	12 00
Bull, 1 year old and under 2, Brookside Farm Co., Ft. Wayne	25 00
Bull, under 1 year old, Brookside Farm Co., Ft. Wayne	20 00
Second, S. P. Clarke, Dover, Illinois	10 00
Cow, 3 years old and over, Brookside Farm Co., Ft. Wayne	25 00
Second, S. P. Clarke, Dover, Illinois	12 00
Cow, 2 years old and under 3, Brookside Farm Co., Ft. Wayne	25 00
Second, S. P. Clarke, Dover, Illinois	12 00
Heifer, 1 year old and under, S. P. Clarke, Dover, Illinois	25 00
Second, S. P. Clarke, Dover, Illinois	12 00
Heifer, under 1 year old, Brookside Farm Co., Ft. Wayne	20 00
Second, S. P. Clarke, Dover, Illinois	10 00
Number of entries, 21.	

Committeeman—B. R. Pierce, Creston, Illinois.

CLASS V—All Red Polls.

Bull, 3 years old and over, Shafer & Clamson, Hamilton, Ohio	\$25 00
Bull, 1 year old and under 2, Shafer & Clamson, Hamilton, Ohio	25 00
Bull, under 1 year old, Shafer & Clamson, Hamilton, Ohio	20 00
Cow, 3 years old and over, Shafer & Clamson, Hamilton, Ohio	25 00
Second, Shafer & Clamson, Hamilton, Ohio	12 00
Cow, 2 years old and under 3, Shafer & Clamson, Hamilton, Ohio	25 00
Second, Shafer & Clamson, Hamilton, Ohio	12 00
Heifer, 1 year old and under 2, Shafer & Clamson, Hamilton, Ohio	25 00
Second, Shafer & Clamson, Hamilton, Ohio	12 00
Heifer, under 1 year, Shafer & Clamson, Hamilton, Ohio	20 00
Number of entries, 10.	

Committeeman—R. B. Pierce, Creston, Illinois.

CLASS VI—Holstein-Friesians.

J. N. DAVIDSON, Superintendent.

Bull, 3 years old and over, G. A. Stanton, Greenwood	\$25 00
Second, S. W. Dungan, Franklin	12 00
Bull, 2 years old and under 3, Wm. H. Keller, Corydon	25 00
Bull, 1 year old and under 2, S. W. Dungan, Franklin	25 00
Second, G. A. Stanton, Greenwood	12 00

Bull, under 1 year old, Wm. H. Keller, Corydon	\$20 00
Second, G. A. Stanton, Greenwood	10 00
Cow, 3 years old and over, G. A. Stanton, Greenwood	25 00
Second, Wm. H. Keller, Corydon	12 00
Cow, 2 years old and under 3, Wm. H. Keller, Corydon	25 00
Second, G. A. Stanton, Greenwood	12 00
Heifer, 1 year old and under 2, G. A. Stanton, Greenwood	25 00
Second, G. A. Stanton, Greenwood	12 00
Heifer, under 1 year, Wm. H. Keller, Corydon	20 00
Second, G. A. Stanton, Greenwood	10 00
Number of entries, 38.	

Committeeman—A. G. Kerr, Lyndon, Kentucky.

CLASS VII—Devons.

Bull, 3 years old and over, J. York & Sons, Brock, Ohio.	\$25 00
Second, William Davis, Bloomingdale	12 00
Bull, 2 years old and under 3, D. J. Whitmore & Co., Casstown, Ohio	25 00
Bull, 1 year old and under 2, J. York & Sons, Brock, Ohio	25 00
Second, D. J. Whitmore & Co., Casstown, Ohio	12 00
Bull, under 1 year old, D. J. Whitmore & Co., Casstown, Ohio	20 00
Second, J. York & Sons, Brock, Ohio.	10 00
Cow, 3 years old and over, D. J. Whitmore & Co., Casstown, Ohio.	25 00
Second, J. York & Sons, Brock, Ohio	12 00
Cow, 2 years old and under 3, J. York & Sons, Brock, Ohio.	25 00
Second, William Davis, Bloomingdale	12 00
Heifer, 1 year old and under 2, J. York & Sons, Brock, Ohio	25 00
Second, J. York & Sons, Brock, Ohio	12 00
Heifer, under 1 year old, D. J. Whitmore & Co., Casstown, Ohio	20 00
Second, D. J. Whitmore & Co., Casstown, Ohio	10 00
Number of entries, 34.	

Committeeman—A. G. Herr, Lyndon, Kentucky.

CLASS VIII—Jerseys.

Bull, 3 years old and over, W. A. Ketcham, Indianapolis	\$25 00
Second, W. A. Ketcham, Indianapolis	12 00
Bull, 2 years old and under 3, Garrettson Bros., Pendleton	25 00
Second, Garrettson Bros., Pendleton.	12 00
Bull, 1 year old and under 2, Cochran & Son, Spiceland	25 00
Second, Garrettson Bros., Pendleton	12 00
Bull, under 1 year old, J. W. Meyers, Butlerville	20 00
Second, Cochran & Son, Spiceland	10 00

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Cow, 3 years old and over, Garrettson Bros., Pendleton	\$25 00
Second, J. W. Meyers, Butlerville	12 00
Cow, 2 years old and under 3, Cochran & Son, Spiceland	25 00
Second, J. W. Meyers, Butlerville	12 00
Heifer, 1 year old and under 2, Garrettson Bros., Pendleton.	25 00
Second, Cochran & Son, Spiceland	12 00
Heifer, under 1 year old, Garrettson Bros., Pendleton.	20 00
Second, W. A. Ketcham, Indianapolis	10 00
Number of entries, 43.	

Committeeman—A. G. Herr, Lyndon, Kentucky.

HORSES.

V. K. OFFICER AND E. H. PEED, Superintendents.

CLASS IX—French Draft.

Stallion, 4 years old and over, Dillon Bros., Normal, Illinois	\$35 00
Second, J. W. McNamee, New Palestine	18 00
Stallion, 3 years old and under 4, Bridgeland & Berry, Indianapolis.	30 00
Stallion, 2 years old and under 3, Dillon Bros., Normal, Illinois.	20 00
Second, Bridgeland & Berry, Indianapolis	10 00
Stallion, 1 year old and under 2, Dillon Bros., Normal, Ill	20 00
Second, Bridgeland & Berry, Indianapolis	10 00
Stallion colt, under 1 year old, Bridgeland & Berry, Indianapolis.	15 00
Second, Bridgeland & Berry, Indianapolis	7 00
Mare, 4 years old and over, Dillon Bros., Normal, Illinois	25 00
Second, Bridgeland & Berry, Indianapolis	12 00
Mare, 3 years old and under 4, Dillon Bros., Normal, Illinois.	20 00
Second, Bridgeland & Berry, Indianapolis	10 00
Mare, 2 years old and under 3, Dillon Bros., Normal, Illinois.	20 00
Second, Bridgeland & Berry, Indianapolis	10 00
Mare, 1 year old and under 2, J. W. McNamee, New Palestine	15 00
Mare colt, under 1 year, Bridgeland & Berry, Indianapolis.	12 00
Number of entries, 31.	

Committeeman—James A. Perry, Wilmington, Illinois.

CLASS X—Percherons.

Stallion, 4 years old and over, Dillon Bros., Normal Illinois	\$35 00
Second, M. D. Hensler, Waupecong	18 00
Stallion, 3 years old and under 4, Rufus B. Kellogg, Green Bay, Wisconsin.	30 00
Stallion, 2 years old and under 3, Door Prairie Live Stock Association, Door Village	20 00
Second, Harley Silver, Joliettsville	10 00
Stallion, 1 year old and under 2, Dillon Bros., Normal, Illinois	20 00
Second, Dillon Bros., Normal, Illinois	10 00
Mare, 4 years old and over, Dillon Bros., Normal, Illinois	25 00
Second, Bridgeland & Berry, Indianapolis	12 00
Mare, 3 years old and under 4, Dillon Bros., Normal, Illinois	20 00
Second, J. W. McNamee, New Palestine.	10 00
Mare, 2 years old and under 3, Dillon Bros., Normal, Illinois.	20 00
Mare, 1 year old and under 2, Dillon Bros., Normal, Illinois	15 00
Mare colt, under 1 year, J. W. McNamee, New Palestine.	12 00
Number of entries, 23.	

Committeeman—James A. Perry, Wilmington, Illinois.

CLASS XI—Clydesdale.

Stallion, 4 years old and over, T. J. Bell, Morristown	\$35 00
Second, Banks & Closser, Laporte	18 00
Stallion, 3 years old and under 4, Banks & Closser, Laporte	30 00
Second, S. J. Fletcher, Indianapolis	15 60
Stallion, 2 years old and under 3, Banks & Closser, Laporte	20 00
Second, A. J. Ruark, Greencastle	10 00
Stallion, 1 year old and under 2, W. L. Risk, Greensboro	20 00
Stallion colt, under 1 year old, W. L. Risk, Greensboro	15 00
Mare, 4 years old and over, W. L. Risk, Greensboro	25 00
Second, Door Prairie L. S. Association, Door Village	12 00
Mare, 3 years old and under 4, W. L. Risk, Greensboro	20 00
Mare, 2 years old and under 3, W. L. Risk, Greensboro.	20 00
Second, S. J. Fletcher, Indianapolis	10 00
Mare, 1 year old and under 2, S. J. Fletcher, Indianapolis	15 00
Second, W. L. Risk, Greensboro.	7 00
Mare colt, under 1 year old, W. L. Risk, Greensboro.	12 00
Second, S. J. Fletcher, Indianapolis	6 00
Number of entries, 29.	

Committeeman—A. B. McLaren, Blandinsville, Illinois.

CLASS XII—English Shire.

Stallion, 4 years old and over, J. C. Truman, Bushnell, Illinois	\$35 00
Second, Dye & Stillwell, Troy, Ohio	18 00
Stallion, 3 years old and under 4, Thompson & Bland, Indianapolis	30 00
Second, J. G. Truman, Bushnell, Illinois	15 00
Stallion, 2 years old and under 3, J. G. Truman, Bushnell, Illinois	20 00
Second, Dye & Stillwell, Troy, Ohio	10 00
Stallion, 3 years old and under 4, Thompson & Bland, Indianapolis	30 00
Second, J. G. Truman, Bushnell, Illinois	15 00
Stallion, 2 years old and under 3, J. G. Truman, Bushnell, Illinois	20 00
Second, Dye & Stillwell, Troy, Ohio	10 00
Stallion, 1 year old and under 2, Dye & Stillwell, Troy, Ohio	20 00
Mare, 4 years old and over, J. G. Truman, Bushnell, Illinois	25 00
Second, J. G. Truman, Bushnell, Illinois	12 00
Mare, 3 years old and under 4, Dye & Stillwell, Troy, Ohio	20 00
Mare, 2 years old and under 3, J. G. Truman, Bushnell, Illinois	20 00
Second, Dye & Stillwell, Troy, Ohio	10 00
Number of entries, 22.	

Committeeman—C. J. Fields, Cedar Falls, Iowa.

CLASS XIII—Belgian Horses.

Stallion, 4 years old and over, John Shields, Nora	\$35 00
Second, John T. Pressley, Indianapolis	18 00
Stallion, 3 years old and under 4, Wabash Importing Co., Wabash	30 00
Second, Wabash Importing Co., Wabash	15 00
Stallion colt, under 1 year old, Wabash Importing Co., Wabash	15 00
Mare, 4 years old and over, Wabash Importing Co., Wabash	25 00
Second, Wabash Importing Co., Wabash	12 00
Mare, 3 years old and under 4, Lee S. Brown, Carmel	20 00
Mare, 1 year old and under 2, Wabash Importing Co., Wabash	15 00
Number of entries, 15.	

Committeeman—C. J. Fields, Cedar Falls, Iowa.

CLASS XIV—Cleveland Bays.

Stallion, 4 years old and over, Dye & Stillwell, Troy, Ohio	\$35 00
Second, Door Prairie Live Stock Association, Door Village	18 00
Stallion, 3 years old and under 4, Door Prairie Live Stock Association, Door Village	30 00
Second, Banks & Closser, Laporte	15 00

Stallion, 2 years old and under 3, Banks & Closser, Laporte.	\$20 00
Second, Door Prairie Live Stock Association, Door Village	10 00
Stallion, 1 year old and under 2, Banks & Closser, Laporte	20 00
Mare, 4 years old and over, John W. Fort, Indianapolis	25 00
Mare, 3 years old and under 4, John W. Fort, Indianapolis.	20 00
Number of entries, 13.	

Committeeman—C. J. Fields, Cedar Falls, Iowa.

CLASS XV—French and Coach Horses.

Stallion, 4 years old and over, Urbana Importing Co., Urbana, Illinois . . .	\$35 00
Second, E. W. Shirley, Danville	18 00
Stallion, 2 years old and under 3, Thompson & Bland, Indianapolis	20 00
Mare, 4 years old and over, Thompson & Bland, Indianapolis	25 00
Number of entries, 5.	

Committeeman—C. J. Fields, Cedar Falls, Iowa.

CLASS XVI—Horses for General Purposes.

Stallion, 4 years old and over, Baum & Groves, Frankfort	\$35 00
Second, Thompson & Bland, Indianapolis	18 00
Stallion, 3 years old and under 4, P. Morningstar, Mooresville	30 00
Second, Mescall & Wards, Indianapolis.	15 00
Stallion, 2 years old and under 3, Thompson & Bland, Indianapolis	20 00
Second, Harley Silver, Joliettsville	10 00
Stallion, 1 year old and under 2, W. L. Risk, Greensboro.	20 00
Second, Harvey Randall, Indianapolis	10 00
Stallion colt, under 1 year, John W. Fort, Indianapolis	15 00
Second, W. L. Risk, Greensboro	7 00
Mare, 4 years old and over, S. J. Fleming, Terre Haute	25 00
Second, Cooper & Culp, Georgetown	12 00
Mare, 3 years old and under 4, Ben. F. Huddleson, Ogden	20 00
Second, John W. Fort, Indianapolis	10 00
Mare, 2 years old and under 3, Ben. F. Huddleson, Ogden	20 00
Second, Allen Jackson & Son, Plainfield	10 00
Mare colt, under 1 year old, Chas. Ramsey, Portland Mills.	12 00
Gelding, 3 years old and over, H. F. Wood, Indianapolis.	25 00
Second, Allen Jackson & Son, Plainfield	12 00
General purpose team, H. F. Wood, Indianapolis	20 00
Second, Cooper & Culp, Georgetown	10 00
Number of entries, 88.	

Committeeman—J. W. Sligor.

CLASS XVII—Light Harness Horses.

Stallion, 4 years old and over, J. N. Huston, Connersville	\$35 00
Second, F. M. Rottler, Indianapolis	18 00
Stallion, 3 years old and under 4, J. L. Bradley, Indianapolis	30 00
Second, P. Morningstar, Mooresville	15 00
Stallion, 2 years old and under 3, Berry Randall, Indianapolis	20 00
Second, J. N. Huston, Connersville	10 00
Stallion, 1 year old and under 2, Enoch Moulton, Indianapolis	20 00
Second, George W. Scott, Haughville	10 00
Stallion colt, under 1 year old, George W. Scott, Haughville	15 00
Second, James Robey, Sabine	7 00
Gelding, 3 years old and over, J. L. Bradley, Indianapolis	25 00
Second, John Dawson, Frankfort	12 00
Mare, 4 years old and over, Deloss Thompson, Rensselaer	25 00
Second, James Hazelton, Rushville	12 00
Mare, 3 years old and under 4, M. L. Hare, Indianapolis	20 00
Second, J. L. Bradley, Indianapolis	10 00
Mare, 2 years old and under 3, Deloss Thompson, Rensselaer	20 00
Second, M. L. Hare	10 00
Mare, 1 year old and under 2, Mettler Bros., Indianapolis	15 00
Mare colt, under 1 year old, George W. Scott, Haughville	12 00
Light harness team, J. L. Bradley	20 00
Second, Cooper & Culp, Georgetown, Illinois	10 00
Number of entries, 182.	

Committeemen—B. Dickinson, J. W. Sligor.

CLASS XVIII.

Saddle Horses.

Gelding or mare, any age, I. S. Gordon, Indianapolis	\$10 00
Second, Allen Jackson & Son, Plainfield	5 00
Number of entries, 10.	

Committeemen—J. W. Sligor, C. A. Berry.

Brood Mare—Draft.

W. L. Risk, Greensboro	10 00
Number of entries, 6.	

Committeeman—C. J. Fields, Cedar Falls, Iowa.

Brood Mare—General Purposes.

Charles Ramsey, Portland Mills. \$10 00
 Number of entries, 3.

Committeeman—J. W. Sligor.

Brood Mare—Light Harness.

W. L. Risk, Greensboro 10 00
 Number of entries, 5.

Committeemen—J. W. Sligor, B. Dickerson.

Best Display Draft Horses.

J. H. Truman, Bushnell, Illinois Diploma
 Number of entries, 4.

Committeeman—J. H. Dawson, Frankfort.

CLASS XIX—Jacks, Jennets and Mules.

Jack, 3 years old and over, Underwood & Oden, Groveland \$15 00
 Second, J. F. Higgins, New Maysville 8 00
 Jack, 2 years old and under 3, Underwood & Oden, Groveland 10 00
 Jack, 1 year old and under 2, C. W. Neal & Son, Brownsburg. 8 00
 Second, Underwood & Oden, Groveland. 4 00
 Jennet, 3 years old and over, Underwood & Oden, Groveland 8 00
 Second, C. W. Neal & Son, Brownsburg. 4 00
 Jack or Jennet, sucking colt, C. W. Neal & Son, Brownsburg 3 00
 Pair mules, 3 years old and over, K. Munter, Indianapolis 20 00
 Second, John J. Cooper, Indianapolis. 10 00
 Number of entries, 13.

Committeeman—C. A. Berry, New Castle, Indiana.

CLASS XX—*Speed List.*

B. F. CLEMENS, Superintendent.

Three-year-old Trot—Purse, \$300.

Boone Wilson—Bruce Carr, Indianapolis, Indiana	\$150 00
Gambryon—J. M. Garr, Richmond, Indiana	100 00
O. K.—Wm. M. Cook, Glenwood, Indiana	50 00
Time—2:35, 2:36, 2:30, 2:41½, 2:45.	

2:37 Pace—Purse, \$400.

Lon G.—Wm. Marvin, Odell, Illinois	\$200 00
Kissell's Dallas—G. Fred. Kissell, Indianapolis	125 00
Frank S.—B. A. Salmon, Brownsburg	75 00
Time—2:31½, 2:30½, 2:30½, 2:32, 2:30.	

2:37 Trot—Purse, \$400.

Wyandott—W. B. Legg, Raleigh	\$200 00
Sam Harris—B. T. Benny, Rushville	125 00
Joe S.—L. H. Stewart, Roachdale	75 00
Time—2:30, 2:38½, 2:36.	

Three-minute Trot —Purse, \$400.

General Smith—J. Crouch, Lafayette	\$200 00
Jubilant—Russellville Horse Co., Russellville	125 00
Lancewood Chief—Rensselaer Stock Farm, Rensselaer	75 00
Time—2:33½, 2:41½, 2:37½.	

2:20 Pace—Purse, \$400.

Lottie M.—John W. Pigman, Connersville	\$200 00
Forest Wilkes—M. F. McHaffie & Son, Stilesville	125 00
Prince Echo—S. L. Fletcher, Spiceland	75 00
Time—2:30, 2:28¾, 2:24¾, 2:30.	

2:30 Trot—Purse, \$400.

Dot L.—James Louer, Laporte	\$200 00
Leo—Rensselaer Stock Farm, Rensselaer	125 00
Nettie B.—A. P. Hanes, Paris, Illinois	75 00
Time—2:33, 2:31, 2:34.	

BOARD OF AGRICULTURE.

Old Trot—Purse, \$200.

Cassett—H. J. Jamison, Greenville, Ohio	\$100 00
Medium—Rensselaer Stock Farm, Rensselaer	65 00
—C. N. Dickerson, Madison	35 00
Time—2:51½, 2:51½.	

Trot—Purse, \$400.

gan—I. N. Dickerson, Madison	\$200 00
Worthington—S. E. Fairley, Rushville	125 00
Land Boy—Jack Hurst, Cambridge City	75 00
Time—2:43½, 2:42½, 2:42½.	

—Purse, \$300.

ester—Thomas Levi, Noblesville	\$150 00
Willett—N. A. Randall, Indianapolis	100 00
Time—2:39, 2:38, 2:40.	

SHEEP.

S. W. DUNGAN, Superintendent.

CXI—Fine Wool Sheep, to include American, Spanish and French Merinos.

ears old and over, Cook & Morse, West Mansfield, Ohio	\$12 00
id, John Taylor, Protection, Kansas	6 00
ear old and under 2, Uriah Privett & Bro., Greensburg.	12 00
id, John Taylor, Protection, Kansas	6 00
ib, John Taylor, Protection, Kansas	12 00
id, Cook & Morse, West Mansfield, Ohio	6 00
o ewes, 2 years old and under 3, Cook & Morse, West Mansfield, O	12 00
id, Uriah Privett & Bro., West Mansfield, Ohio	6 00
o ewes, 1 year old and under 2, Uriah Privett & Bro., Greensburg	12 00
id, John Taylor, Protection, Kansas	6 00
o ewe lamba, Cook & Morse, West Mansfield, Ohio	12 00
id, John Taylor, Protection, Kansas	6 00
n and five of his get, John Taylor, Protection, Kansas.	20 00
id, Cook & Morse, West Mansfield, Ohio	10 00
n, any age, two ewes 2 years old, two ewes 1 year old, and two ewe	
amba, Cook & Morse, West Mansfield, Ohio.	20 00
id, Uriah Privett & Bro., Greensburg	10 00
ber of entries, 38.	

nitteeman—Isaac Ball, Middletown, Indiana.

CLASS XXII—Long Wool Sheep, Cotswolds, Leicester, or Lincolns.

Ram, 2 years old and over, J. G. Snell & Bro., Edmonton, Ontario	\$12 00
Second, Uriah Privett & Bro., Greensburg	6 00
Ram, 1 year old and under 2, J. B. Herkless, Knightstown	12 00
Second, W. Wilson & Bro., Muncie.	6 00
Ram lamb, J. B. Herkless, Knightstown	12 00
Second, J. G. Snell & Bro., Edmonton, Ontario	6 00
Pen of two ewes, 2 years old and over, W. W. Wilson & Bro., Muncie	12 00
Second, Uriah Privett & Bro., Greensburg.	6 00
Pen of two ewes, 1 year old and under 2, J. G. Snell & Bro., Edmonton, Ontario	12 00
Second, J. B. Herkless, Knightstown	6 00
Pen of two ewe lambs, J. B. Herkless, Knightstown	12 00
Second, J. G. Snell & Bro., Edmonton, Ontario	6 00
Best flock of one ram and five of his get, the get to be 1 year old or under, and bred and owned by the exhibitor, J. G. Snell & Bro., Edmon- ton, Ontario	20 00
Second, J. B. Herkless, Knightstown	10 00
Best flock of one ram, any age, two ewes 2 years old and over, two ewes 1 year old and under 2 years, and two ewe lambs, J. B. Herkless, Knightstown.	20 00
Second, W. W. Wilson & Bro., Muncie.	10 00
Number of entries, 34.	

Committeeman—S. H. Todd, Wakeman, Ohio.

CLASS XXIII—Southdowns.

Ram, 2 years old and over, Uriah Privett & Bro., Greensburg	\$12 00
Second, W. T. Matthews & Son, Buffalo Heart.	6 00
Ram, 1 year old and under 2, W. W. Wilson & Bro., Muncie	12 00
Second, Uriah Privett & Bro., Greensburg	6 00
Ram Lamb, W. T. Matthews & Son, Buffalo Heart.	12 00
Second, Uriah Privett & Bro., Greensburg	6 00
Pen of two ewes, 2 years old and over, Uriah Privett & Bro., Greensburg	12 00
Second, W. W. Wilson & Bro., Muncie.	6 00
Pen of two ewes, 1 year old and under 2, Uriah Privett & Bro., Greensburg.	12 00
Second, Uriah Privett & Bro., Greensburg	6 00
Pen of two ewe lambs, W. T. Matthews & Son, Buffalo Heart	12 00
Second, W. W. Wilson & Bros., Muncie	6 00
Best flock of one ram and five of his get, the get to be 2 years old or under, bred and owned by exhibitor, W. W. Wilson & Bros., Muncie	20 00

Best flock of one ram, any age, two ewes 2 years old and over, two ewes 1 year old and under 2, and two ewe lambs, Uriah Privett & Bro., Greensburg \$20 00
Second, W. W. Wilson & Bro., Muncie. 10 00
 Number of entries, 32.

Committeeman—S. H. Todd, Wakeman, Ohio.

CLASS XXIV—Oxfordshire and Hampshire Downs.

Ram, 2 years old and over, Stone & Harris, Stonington, Illinois \$12 00
Second, Skinner & Collett, Denver 6 00
Ram, 1 year old and under 2, Stone & Harris, Stonington, Illinois 12 00
Second, Stone & Harris, Stonington, Illinois 6 00
Ram lamb, Stone & Harris, Stonington, Illinois 12 00
Second, John Milton, Marshall, Michigan 6 00
Pen of two ewes, 2 years old and over, Stone & Harris, Stonington, Illinois. 12 00
Second, Skinner & Collett 6 00
Pen of two ewes, 1 year old and under 2, Stone & Harris, Stonington, Illinois. 12 00
Second, John Milton, Marshall, Michigan 6 00
Pen of two ewe lambs, John Milton, Marshall, Michigan 12 00
Second, Stone & Harris, Stonington, Illinois. 6 00
Best flock of one ram and five of his get, the get to be 1 year old or under, bred and owned by exhibitor, Stone & Harris, Stonington, Illinois . 20 00
Second, Stone & Harris, Stonington, Illinois 10 00
Best flock of one ram, any age, two ewes 2 years old and over, two ewes 1 year old and under 2 years, and two ewe lambs, Stone & Harris, Stonington, Illinois 20 00
Second, Skinner & Collett, Denver 10 00
 Number of entries, 30.

Committeeman—S. H. Todd, Wakeman, Ohio.

CLASS XXV—Shropshire.

Ram, 2 years old and over, John L. Thompson & Son, Marion \$12 00
Second, John Milton, Marshall, Mich 6 00
Ram, 1 year old and under 2, John L. Thomson & Son, Marion 12 00
Second, I. J. Williams & Son, Muncie 6 00
Ram lamb, John L. Thompson & Son, Marion 12 00
Second, John L. Thompson & Son, Marion 6 00
Pen of two ewes, 2 years old and over, John L. Thompson & Son, Marion . 12 00
Second, John L. Thompson & Son, Marion 6 00
Pen of two ewes, 1 year old and under 2, John L. Thompson & Son, Marion 12 00
Second, I. J. Williams & Son, Muncie 6 00

Pen of two ewe lambs, John L. Thompson & Son, Marion	\$12 00
Second, I. J. Williams & Son, Muncie	6 00
Best flock of one ram and five of his get, the get to be 2 years old or under, bred and owned by exhibitor, I. J. Williams & Son, Muncie	20 00
Best flock of one ram, any age; two ewes, 2 years old and over; two ewes, 1 year old and under 2, and two ewe lambs, John L. Thompson & Son, Marion	20 00
Second, John L. Thompson & Son, Marion	10 00

The American Shropshire Registry Association offers a special premium of
a gold cup for the best flock of registered Shropshire, one ram, any
age; two ewes, 2 years old or over; two ewes, one year old and
under 2, and two ewe lambs, to be owned by one exhibitor, John
L. Thompson & Son, Marion.

Number of entries, 45.

Committeeman—S. H. Todd, Wakeman, Ohio.

HOGS.

LLOYD S. JONES, Superintendent.

CLASS XXVI—*Berkshires.*

Boar, 2 years old and over, Andy Martin, Muncie	\$12 00
Second, Cass & Burns, Buffalo Heart, Illinois	6 00
Boar, 1 year old and under 2, M. Habbleshwaite, Berlinville, Ohio	10 00
Second, B. J. Potts & Son, Andrews, Ohio	5 00
Boar, under 12 and over 6 months old, Cass & Burns, Buffalo Heart, Illinois	8 00
Second, I. N. Barker, Thorntown.	4 00
Boar, under 6 months old, I. N. Barker, Thorntown	5 00
Second, Samuel C. Roush	3 00
Five shoats, under 6 months old, I N. Barker, Thorntown	10 00
Second, B. J. Potts & Son, Andrews, Ohio.	5 00
Sow, 2 years old and over, B. J. Potts & Son, Andrews, Ohio	12 00
Second, Samuel C. Roush	6 00
Sow, 1 year old and under 2, Cass & Burns, Buffalo Heart, Illinois	10 00
Second, M. Habbleshwaite, Berlinville, Ohio	5 00
Sow, under 12 and over 6 months old, M. Habbleshwaite, Berlinville, Ohio.	8 00
Second, I. N. Barker, Thorntown	4 00
Sow, under 6 months old, I. N. Barker, Thorntown.	5 00
Second, M. Habbleshwaite, Berlinville, Ohio	3 00
Sow and not less than five sucking pigs, John F. Stover, Crawfordsville	10 00

Committeeman—Robert Thompson.

Sweepstakes.

Boar, any age, Cass & Burns, Buffalo Heart, Illinois	\$20 00
Sow, any age, B. J. Potts & Son, Andrews, Ohio	20 00
Herd, owned by one exhibitor or firm, Cass & Burns, Buffalo Heart, Illinois	40 00
Second, B. J. Potts & Son, Andrews, Ohio.	20 00
Boar and five of his get under 12 months old, M. Habbblethwaite, Berlinville, Ohio.	20 00
Second, W. A. Maze, Sharpsville, Ind.	10 00
Number of entries, 130.	

Committeemen—W. S. Johnson, J. F. Gillam.

CLASS XXVII—Poland China.

Boar, 2 years old and over, Mintz Bros., Mohawk	\$12 00
Second, W. T. Matthews & Son, Buffalo Heart, Illinois	6 00
Boar, 1 year old and under 2, Johnson & Hughes, Indianapolis	10 00
Second, Hamilton & Byer Bros., Warsaw.	5 00
Boar, under 12 and over 6 months, H. D. Smith, Crawfordsville	8 00
Second, Robinson Bros. & Hill, Winchester	4 00
Boar, under 6 months, Johnson & Hughes, Indianapolis	5 00
Second, Anders & May, Winterrowd	3 00
Five shoats, under 6 months, Johnson & Hughes, Indianapolis	10 00
Second, Anders & May, Winterrowd	5 00
Sow, 2 years old and over, Anders & May, Winterrowd	12 00
Second, J. W. Wilson, Poplar Grove	6 00
Sow, 1 year old and under 2, Joe Cunningham, Bunker Hill	10 00
Second, F. Gartin & Sons, Burney	5 00
Sow, under 12 and over 6 months, A. H. Mather, Wilmington, Ohio.	8 00
Second, Robinson Bros & Hill, Winchester	4 00
Sow, under 6 months, John H. Beabout, Rushville	5 00
Second, F. Gartin & Sons, Burney	3 00
Sow and not less than five sucking pigs, Johnson & Hughes, Indianapolis	10 00
Second, W. J. Chapman, Indianapolis.	5 00

Committeeman—Samuel C. Roush.

Sweepstakes.

Boar, any age, Johnson & Hughes, Indianapolis	\$20 00
Sow, any age, A. H. Mather, Wilmington, Ohio	20 00
Herd, owned by one exhibitor or firm, Lloyd Mugg & Co., Center	40 00
Second, Joe Cunningham, Bunker Hill	20 00

Boar and five of his get, under 12 months old, Johnson & Hughes, Indianapolis \$20 00
 Second, Joe Cunningham, Bunker Hill 10 00
 Number of entries, 355.

Committeemen—I. N. Barker, S. E. Hollingsworth, Daniel Christian.

CLASS XXVIII—Chester Whites.

Boar, 2 years old and over, Cass & Burns, Buffalo Heart, Illinois \$12 00
 Second, S. H. Todd, Wakeman, Ohio 6 00
 Boar, 1 year old and under 2, Ellis House, Bicknell 10 00
 Boar, under 12 and over 6 months old, W. C. Norton, Agent, Aldenville, Pa . 8 00
 Second, S. H. Todd, Wakeman, Ohio 4 00
 Boar, under 6 months old, S. H. Todd Wakeman, Ohio 5 00
 Second, Wm. Pace, Bicknell. 3 00
 5 shoats, under 6 months old, S. H. Todd, Wakeman, Ohio 10 00
 Second, Thompson & Bell, Indianapolis 5 00
 Sow, 2 years old and over, S. H. Todd, Wakeman, Ohio 12 00
 Second, S. H. Todd, Wakeman, Ohio 6 00
 Sow, 1 year old and under 2, S. H. Todd, Wakeman, Ohio 10 00
 Second, C. D. Brooks 5 00
 Sow, under 12 and over 6 months old, W. C. Norton, Agent, Aldenville, Pa . 8 00
 Second, S. H. Todd, Wakeman, Ohio 4 00
 Sow, under 6 months old, S. H. Todd, Wakeman, Ohio 5 00
 Second, Myers & Macklin, Briant 3 00
 Sow and not less than 5 sucking pigs, Thompson & Bell, Indianapolis . . . 10 00
 Second, Myers & Macklin, Briant, Ohio. 5 00

Committeeman—W. S. Johnson.

Sweepstakes.

Boar, any age, Cass & Burns, Buffalo Heart, Illinois \$20 00
 Sow, any age, S. H. Todd, Wakeman, Ohio 20 00
 Herd of hogs, owned by one exhibitor or firm, S. H. Todd, Wakeman, Ohio . 40 00
 Second, Thompson & Bell, Indianapolis 20 00
 Boar and five of his get under 12 months old, Thompson & Bell, Indianapolis. 20 00
 Second, S. H. Todd, Wakeman, Ohio. 10 00
 Number of entries, 137.

Committeeman—T. M. Reveal.

CLASS XXIX—Suffolk, Essex, and other small breeds, regardless of color.

Boar, 2 years old and over, John Taylor, Protection, Kansas	\$12 00
Second, A. C. Green, Winchester	6 00
Boar, 1 year old and under 2, A. C. Green, Winchester	10 00
Second, Frank Wilson, Jackson, Michigan	5 00
Boar, under 12 and over 6 months old, Andy Martin, Muncie.	8 00
Second, W. C. Norton, Aldenville, Pennsylvania	4 00
Boar, under 6 months old, Frank Wilson, Jackson, Michigan	5 00
Second, A. S. Gilmour & Co., Greensburg	3 00
Five shoats, under 6 months old, A. S. Gilmour & Co., Greensburg.	10 00
Second, Frank Wilson, Jackson, Michigan.	5 00
Sow, 2 years old and over, Frank Wilson, Jackson, Michigan.	12 00
Second, Bascom & McClave, New London, Ohio	6 00
Sow, one year old and under 2, Bascom & McClave, New London, Ohio	6 00
Second, John Taylor, Protection, Kansas	5 00
Sow, under 12 and over 6 months old, W. C. Norton, Aldenville, Pa	8 00
Second, Frank Wilson, Jackson, Michigan	4 00
Sow, under 6 months old, A. S. Gilmour & Co., Greensburg	5 00
Second, John Taylor, Protection, Kansas	3 00
Sow, and five sucking pigs, Frank Wilson, Jackson, Michigan	10 00
Second, John Taylor, Protection, Kansas	5 00

Committeeman—Adam Faust.

Sweepstakes.

Boar, any age, A. C. Green, Winchester	\$10 00
Sow, any age, W. C. Norton, Aldenville. Pennsylvania	10 00
Herd of hogs, A. C. Green, Winchester	20 00
Second, Bascom & McClave, New London, Ohio.	10 00
Boar, and five of his get, John Taylor, Protection, Kansas	10 00
Second, A. S. Gilmour, Greensburg	5 00
Number of entries, 140.	

Committeeman—Robert Thompson.

CLASS XXX—Duroc Jerseys.

Boar, 2 years old and over, Bell & Reid, New Paris, Ohio.	\$12 00
Second, J. M. Browning, Perry, Illinois	6 00
Boar, 1 year old and under 2, Bell & Reid, New Paris, Ohio	10 00
Second, J. M. Browning, Perry, Illinois	5 00
Boar, under 12 and over 6 months old, A. Ingram, Perry, Illinois.	8 00
Second, J. M. Browning, Perry, Illinois	4 00

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Boar, under 6 months old, Bell & Reid, New Paris, Ohio	\$5 00
Second, A. Ingram, Perry, Illinois	3 00
Five shoats, under 6 months old, J. M. Browning, Perry, Illinois	10 00
Second, A. Ingram, Perry, Illinois	5 00
Sow, 2 years old and over, A. Ingram, Perry, Illinois	12 00
Second, Bell & Reid, New Paris, Ohio	6 00
Sow, 1 year old and under 2, J. M. Browning, Perry, Illinois	10 00
Second, A. Ingram, Perry, Illinois	5 00
Sow, under 12 and over 6 months old, A. Ingram, Perry, Illinois	8 00
Second, Bell & Reid, New Paris, Ohio	4 00
Sow, under 6 months old, J. M. Browning, Perry, Illinois	5 00
Second, Bell & Reid, New Paris, Ohio	3 00
Sow, and five sucking pigs, Bell & Reid, New Paris, Ohio	10 00
Second, A. Ingram, Perry, Illinois	5 00

Committeeman—Samuel C. Raush.

Sweepstakes.

Boar, any age, Bell & Reid, New Paris, Ohio	\$10 00
Sow, any age, A. Ingram, Perry, Illinois	10 00
Herd of hogs, A. Ingram, Perry, Illinois	20 00
Second, Bell & Reid, New Paris, Ohio	10 00
Boar, and five of his get, Bell & Reid, New Paris, Ohio	10 00
Second, A. Ingram, Perry, Illinois	5 00
Number of entries, 61.	

Committeeman—T. M. Reveal.

POULTRY.

J. A. McCLUNG, Superintendent.
WM. TOBIN, Assistant.

CLASS XXXI.

Pair light Brahma fowls, Major Griffin, Mauzy	\$4 00
Second, Major Griffin, Mauzy	2 00
Pair light Brahma chicks, I. N. Barker, Thorntown	4 00
Second, Major Griffin, Mauzy	2 00
Pair dark Brahma fowls, Major Griffin, Mauzy	4 00
Second, Ben T. Pace, Salem	2 00
Pair dark Brahma chicks, Major Griffin, Mauzy	4 00
Second, Thompson & Bell, city	2 00

Pair buff Cochin fowls, Binford & Moffitt, Westland	\$4 00
Second, Enoch Parr, Harristown	2 00
Pair buff Cochin chicks, W. H. Jones, Liberty.	4 00
Second, H. L. Harlan, Crawfordsville	2 00
Pair partridge Cochin fowls, B. T. Pace, Salem	4 00
Second, Major Griffin, Mauzy	2 00
Pair partridge Cochin chicks, Henry Allen, Bloomingdale	
Second, I. N. Barker, Thorntown	2 00
Pair white Cochin fowls, B. T. Pace, Salem.	4 00
Second, C. B. Cage, Shelbyville	2 00
Pair white Cochin chicks, W. H. McMullen, New Market	4 00
Second, B. T. Pace, Salem	2 00
Pair black Cochin fowls, B. F. Hill, Indianapolis	4 00
Second, O. McLean, Laporte	2 00
Pair black Cochin chicks, B. F. Hill, Indianapolis	4 00
Second, Cass & Burns, Buffalo Hart, Illinois.	
Pair barred Plymouth Rock fowls, Daniel Christian, Roanoke	4 00
Second, Daniel Christian, Roanoke	2 00
Pair barred Plymouth Rock chicks, Daniel Christian, Roanoke	4 00
Second, I. N. Barker, Thorntown	2 00
Pair white Plymouth Rock fowls, Binford & Moffitt, Westland	4 00
Second, Binford & Moffitt, Westland	2 00
Pair white Plymouth Rock chicks, Harvey Dennis, Roanoke	4 00
Second, Harvey Dennis, Roanoke	2 00
Pair silver Wyandotte fowls, Charles McClave, New London, Ohio.	4 00
Second, T. M. Campbell, Darlington	2 00
Pair silver Wyandotte chicks, Charles McClave, New London, Ohio.	4 00
Second, B. T. Pace, Salem	2 00
Pair golden Wyandotte chicks, J. H. Servies, New Market	4 00
Second, J. H. Servies, New Market	2 00
Pair white Wyandotte fowls, John Harcourt, New Augusta	4 00
Second, J. A. Hornung, Sunman	2 00
Pair white Wyandotte chicks, John Harcourt, New Augusta	4 00
Second, J. A. Hornung, Sunman.	2 00
Pair black-breasted red game fowls, O. McClain, Laporte	4 00
Second, J. S. Partridge, Indianapolis	2 00
Pair black-breasted red game chicks, J. S. Partridge, Indianapolis	4 00
Second, I. C. Rinker, Daleville	2 00
Pair Langshan fowls, O. McLain, Laporte	4 00
Second, Binford & Moffitt, Westland	2 00
Pair Langshan chicks, Ben. S. Myers, Crawfordsville	4 00
Second, Ben. S. Myers, Crawfordsville	2 00
Pair white Leghorn fowls, William Tobin, Indianapolis	4 00
Second, Henry Allen, Bloomingdale	2 00
Pair white Leghorn chicks, William Tobin, Indianapolis	4 00
Second, William S. Shattuck, Brazil	2 00

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Pair brown Leghorn fowls, E. B. Murphy, Carmel	\$4 00
Second, Henry Allen, Bloomingdale	2 00
Pair brown Leghorn chicks, E. B. Murphy, Carmel	4 00
Second, B. T. Pace, Salem	2 00
Pair black Leghorn fowls, B. F. Hill, Indianapolis	4 00
Second, Charles McClave, New London, Ohio	2 00
Pair black Leghorn chicks, George O. McColey, Waldron	3 00
Second, Charles McClave, New London, Ohio	2 00
Pair white-face black Spanish fowls, G. A. Stanton, Greenwood	3 00
Second, J. H. Tyner, Tipton	2 00
Pair white-faced black Spanish chicks, S. C. Rinker, Daleville	3 00
Second, S. C. Rinker, Daleville	2 00
Pair silver Hamburg fowls, Charles McClave, New London, Ohio	3 00
Second, H. C. Gaith, Indianapolis	2 00
Pair silver Hamburg chicks, Cass & Burns, Buffalo Hart, Illinois	3 00
Second, O. McLean, Laporte	2 00
Pair w. c. b. Polish fowls, J. H. Buck, Irvington	3 00
Second, J. H. Buck, Irvington	2 00
Pair w. c. b. Polish chicks, Charles McClave, New London, Ohio	3 00
Second, J. A. Hornung, Sunman	2 00
Pair golden Polish, J. H. Buck, Irvington	3 00
Second, Cass & Burns, Buffalo Hart, Illinois	2 00
Pair silver Polish, Cass & Burns, Buffalo Hart, Illinois	3 00
Second, Charles McClave, New London, Ohio	2 00
Pair black Minorca fowls, O. McClain, Laporte	4 00
Second, B. T. Pace, Salem	2 00
Pair black Minorca chicks, O. McClain, Laporte	4 00
Second, B. T. Pace, Salem	2 00
Pair black Java, E. B. Murphy, Carmel	3 00
Second, Cass & Burns, Buffalo Hart, Illinois	2 00
Pair silver-gray Dorking, T. M. Campbell, Darlington	3 00
Pair Houdan fowls, Charles McClave, New London, Ohio	3 00
Second, W. A. Scott, Whiteland	2 00
Pair Houdan chicks, George Seegar, Jr., Lafayette	3 00
Second, J. A. Hornung, Sunman	2 00
Pair Red Cap fowls, B. T. Pace, Salem	3 00
Second, B. T. Pace, Salem	2 00
Pair Red Cap chicks, W. C. Berkey & Co., Salem	3 00
Second, Enoch Parr, Harristown	2 00
Pair Andalusians, O. McClain Laporte	3 00
Second, Enoch Parr, Harristown	2 00
Pair golden Seabright bantam fowls, I. N. Barker, Thorntown	3 00
Second, I. N. Barker, Thorntown	2 00
Pair golden Seabright bantam chicks, I. N. Barker, Thorntown	3 00
Second, I. N. Barker, Thorntown	2 0

Pair silver Seabright bantam fowls, Jerry Carter, White Lick	\$3 00
Second, Charles McClave, New London, Ohio	2 00
Pair Silver Seabright bantam chicks, Jerry Carter, White Lick	3 00
Second, Jerry Carter, White Lick	2 00
Pair Japanese Bantams, Charles McClave, New London, Ohio	3 00
Pair Pekin bantams, J. G. Swain, Indianapolis	3 00
Pair B. B. Red Game bantam fowls, Herbert Hufford, Indianapolis	3 00
Second, Daniel Christian, Roanoke	2 00
Pair B. B. Red Game bantam chicks, F. R. Shepherd & Bro., Indianapolis	3 00
Second, O. McLean, Laporte	2 00
Pair sil. Duck Game bantam fowls, Charles McClave, New London, Ohio	3 00
Second, T. W. Pottage, Indianapolis	2 00
Pair sil. Duck Game bantam chicks, Charles McClave, New London, Ohio	3 00
Second, J. H. Tyner, Tipton	2 00
Pair bronze turkeys, old, Charles McClave, New London, Ohio	4 00
Second, Cass & Burns, Buffalo Hart	2 00
Pair bronze turkeys, young, Binford & Moffitt, Westmoreland	3 00
Second, Binford & Moffitt, Westmoreland	2 00
Pair white turkeys, old, T. H. Buck, Irvington	4 00
Second, T. H. Buck, Irvington	2 00
Pair white turkeys, young, Henry Allen, Bloomingdale	4 00
Second, Henry Allen, Bloomingdale	2 00
Pair Toulouse geese, old, Charles McClave, New London, Ohio	3 00
Second, A. E. Dorsey, city	2 00
Pair Toulouse geese, young, Charles McClave, New London, Ohio	3 00
Second, Cass & Burns, Buffalo Hart, Illinois	2 00
Pair Emden geese, old, Charles McClave, New London, Ohio	3 00
Second, S. C. Rinker, Daleville	2 00
Pair Emden geese, young, Charles McClave, New London, Ohio	3 00
Pair Chinese geese, Charles McClave, New London, Ohio	3 00
Second, Cass & Burns, Buffalo Hart, Illinois	2 00
Pair Pekin ducks, Charles McClave, New London, Ohio	3 00
Second, Binford & Moffitt, Westland	2 00
Pair Aylesbury ducks, Charles McClave, New London, Ohio	3 00
Second, T. H. Buck, Irvington	2 00
Pair Rouen ducks, Charles McClave, New London, Ohio	3 00
Second, Charles McClave, New London, Ohio	2 00
Pair Muscovy ducks, Charles McClave, New London, Ohio	3 00
Second, Cass & Burns, Buffalo Hart, Illinois	2 00

CLASS XXXII.

Breeding Pens.

Light Brahmas, Major Griffin, Mauzy	\$5 00
Second, Binford & Moffitt, Westland	3 00
Dark Brahmas, B. T. Pace, Indianapolis	5 00
Second, Major Griffin, Mauzy	3 00

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Buff Cochin, W. H. Jones, Liberty	\$5 00
Second, Binford & Moffitt, Westland	3 00
Partridge Cochin, B. T. Pace, Salem	5 00
Second, Binford & Moffitt, Westland	3 00
White Cochin, B. T. Pace, Salem	5 00
Second, W. H. McMullen, New Market	3 00
Black Cochin, B. F. Hill, Indianapolis	5 00
Second, Henry Allen, Bloomingdale	3 00
Plymouth Rock (barred), Daniel Christian, Roanoke	5 00
Second, Henry Allen, Bloomingdale	3 00
Plymouth Rock (white), Harvey Dennis, Roanoke	5 00
Second, Binford & Moffitt, Westland	3 00
Wyandotte (silver-laced), Charles McClave, New London, Ohio	5 00
Second, B. T. Pace, Salem	3 00
Wyandotte (gold-laced), J. H. Servies, New Market	5 00
Wyandotte (white), John Harcourt, New Augusta	5 00
Second, T. A. Hornung, Sunman	3 00
Langshan, Ben. S. Myers, Crawfordsville	5 00
Second, Binford & Moffitt	3 00
Red Cap, B. T. Pace, Salem	5 00
Second, W. S. Berkley & Co., Salem	3 00
Game B. B. R., S. C. Rinker, Daleville	5 00
Brown Leghorn, E. B. Murphy, Carmel	5 00
Second, Henry Allen, Bloomingdale	3 00
White Leghorn, William Tobin, Indianapolis	5 00
Second, William S. Shattuck, Brazil	3 00
Black Minorca, Enoch Parr, Harristown	5 00
Second, B. T. Pace, Salem	3 00
Houdan, George Seegar, Jr., Lafayette	4 00
Second, W. A. Scott, Whiteland	2 00
Black Spanish, T. H. Buck, Irvington	4 00
Silver Hamburg, H. C. Gaitte, Indianapolis	4 00
Second, H. C. Gaitte, Indianapolis	2 00

Display of Pigeons, etc.

Not less than ten varieties, Frank Erdelmeyer, Indianapolis	\$10 00
Second, H. S. Schrader, city	5 00
Collection of pet games, F. R. Shepherd & Bro., Indianapolis	4 00
Second, H. P. Clarke, city	2 00
Total entries on poultry, 559.	

Committeeman—B. N. Pierce, Indianapolis.

FARM PRODUCTS.

J. A. McCLUNG, Superintendent.

CLASS XXXIII.—Vegetables.

Three cauliflowers, Chas. Becker, Indianapolis.	\$2 00
Second, J. C. Groff, Haughville	1 00
Six broccoli, Chas. Becker, Indianapolis.	2 00
Second, J. C. Groff, Haughville.	1 00
Six vegetable eggs, Whipps Bros., Marion, Ohio.	2 00
Second, Chas. Becker, Indianapolis.	1 00
Six cucumbers, Whipps Bros., Marion, Ohio.	2 00
Second, D. Ellwanger & Co., Haughville	1 00
Peck white beans, J. C. Groff, Haughville	2 00
Second, Jno. Marvel, Royalton	1 00
Peck white navy beans, Whipps Bros., Marion, Ohio	2 00
Second, D. Ellwanger & Co., Haughville	1 00
Peck colored navy beans, D. Ellwanger & Co., Haughville	2 00
Second, J. C. Groff, Haughville	1 00
Two quarts Lima beans, Jno. Marvel, Royalton	2 00
Second, Whipps Bros., Marion, Ohio	1 00
Half gallon garden peas, dry, Whipps Bros., Marion, Ohio	2 00
Second, J. C. Groff, Haughville	1 00
Half gallon field peas, dry, Whipps Bros., Marion, Ohio	2 00
Second, J. C. Groff, Haughville	1 00
Half peck peppers for pickling, Whipps Bros., Marion, Ohio	2 00
Second, John Marvel, Royalton	1 00
Peck tomatoes, J. C. Groff, Haughville	2 00
Second, Charles Becker, Indianapolis	1 00
Collection tomatoes, Charles Becker, Indianapolis.	2 00
Second, D. Ellwanger & Co	1 00
Half dozen ears green sweet corn, Lee Trout, Franklin	2 00
Second, William Enners, Clermont	1 00
Half peck dry sweet corn, Whipps Bros., Marion, Ohio	2 00
Second, Sol. H. Hayes, Elizabethtown, Ohio	1 00
Three Hubbard squashes, Whipps Bros., Marion, Ohio.	2 00
Second, J. C. Groff, Haughville.	1 00
Three Marblehead squashes, Whipps Bros., Marion, Ohio	2 00
Second, D. Ellwanger & Co., Haughville	1 00
Three crook-neck squashes, Whipps Bros., Marion, Ohio	2 00
Second, John Marvel, Royalton	1 00

Three California squashes, John Marvel, Royalton	\$2 00
Second, D. Ellwanger & Co.	1 00
Largest pumpkin, J. D. Whitesides, Franklin	2 00
Largest squash, D. Ellwanger & Co., Haughville	2 00
Three field pumpkins, John Marvel, Royalton	2 00
Second, J. D. Whitesides, Franklin	1 00
Three drum-head cabbages, Whipps Bros., Marion, Ohio	2 00
Second, J. C. Groff, Haughville	1 00
Three flat Dutch cabbages, Whipps Bros., Marion, Ohio	2 00
Second, D. Ellwanger & Co., Haughville	1 00
Three heads cabbages, any kind, Whipps Bros., Marion, Ohio	2 00
Second, D. Ellwanger & Co	1 00
Dozen stalks celery, D. Ellwanger & Co.	2 00
Second, John Marvel, Royalton	1 00
Collection of vegetables by one exhibitor, Charles Becker, Indianapolis . .	10 00
Second, J. C. Groff, Haughville	5 00
Three watermelons, Whipps Bros., Marion, Ohio	5 00
Second, Sol. H. Hayes, Elizabethtown, Ohio	2 00
Three nutmeg melons, J. C. Groff, Haughville	3 00
Second, Charles Becker, Indianapolis	2 00
Largest striped gypsy melon, Whipps Bros., Marion, Ohio	2 00
Largest icing melon, Whipps Bros., Marion, Ohio	2 00
Collection melons, Whipps Bros., Marion, Ohio	5 00
Three gourds, Millie Adams, Indianapolis—worthy.	
Number of entries, 181.	

CLASS XXXIV—Root Crops.

Half bushel turnips, J. C. Groff, Haughville.	\$2 00
Second, Charles Becker, Indianapolis	1 00
Dozen parsnips, Whipps Bros., Marion, Ohio	2 00
Second, D. Ellwanger & Co., Haughville	1 00
Dozen carrots, Whipps Bros., Marion, Ohio	2 00
Second, Frank Williamson, Nora.	1 00
Dozen roots salsify, Charles Becker, West Indianapolis.	2 00
Second, D. Ellwanger & Co	1 00
Dozen horse radish, Charles Becker, Indianapolis	2 00
Second, J. C. Groff, Haughville.	1 00
Half dozen long red beets, Whipps Bros., Marion, Ohio.	2 00
Second, Frank Williamson, Nora.	1 00
Half dozen turnip beets, Frank Williamson, Nora.	2 00
Second, John Marvel, Royalton	1 00
Half dozen sugar beets, S. Johnson, Irvington	2 00
Second, Whipps Bros., Marion, Ohio.	1 00
Half dozen mangel wurzel beets, S. Johnson, Irvington.	2 00
Second, Whipps Bros., Marion, Ohio	1 00

Half peck red onions, J. C. Groff, Haughville.	\$2 60
Second, John Marvel, Royalton	1 00
Half peck yellow onions, Whipps Bros., Marion, Ohio	2 00
Second, J. C. Groff, Haughville	1 00
Half peck white onions, Whipps Bros.	2 00
Second, J. C. Groff	1 00
Dozen turnip radishes, John Marvel, Royalton.	1 00
Second, Charles Becker, Indianapolis.	50
Dozen long radishes, Charles Becker	1 00
Second, John Marvel.	50
Dozen radishes, any other kind, Charles Becker	1 00
Second, D. Ellwanger & Co	50
Collection root crops, J. C. Groff, Haughville	5 00
Second, Charles Becker, Indianapolis	3 00
Half gallon white onion sets, Whipps Bros.	2 00
Second, Charles Becker	1 00
Half gallon yellow onion sets, J. C. Groff	2 00
Second, Charles Becker	1 00
Number of entries, 138.	

CLASS XXXV—Potatoes.

White Star, Whipps Bros., Marion, Ohio	\$2 00
Second, John Marvel, Royalton	1 00
Dunmore Seedling, Whipps Bros.	2 00
Second, Sol. H. Hays, Elizabethtown	1 00
Early Rose, Whipps Bros.	2 00
Second, John Marvel	1 00
Snowflake, D. Ellwanger & Co., Haughville.	2 00
Second, Whipps Bros.	1 00
Early Ohio, Whipps Bros.	2 00
Second, Mrs. Robert Mitchell, Princeton	1 00
Pride of the Valley, Whipps Bros.	2 00
Second, John Marvel	1 00
Early Vermont, Whipps Bros.	2 00
Second, John Marvel	1 00
Beauty of Hebron, Whipps Bros.	2 00
Second, John Marvel	1 00
Clark's No. 1, Whipps Bros.	2 00
Second, John Marvel	1 00
Burbank Seedling, Whipps Bros.	2 00
Second, D. Ellwanger & Co	1 00
Empire State, Whipps Bros.	2 00
Second, W. H. Bailey, Ben Davis	1 00
Rosy Morn, Whipps Bros.	2 00
Second, John Marvel	1 00

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Early Gem, Whipps Bros.	\$2 00
Second, John Marvel	1 00
Early Sunrise, Whipps Bros.	2 80
Second, John Marvel	1 00
Red Star, Whipps Bros.	2 00
Second, John Marvel.	1 00
Golden Spy, Whipps Bros	2 00
Second, John Marvel	1 00
Green Mountain, Whipps Bros.	2 00
Second, F. D. Bowers, Zionsville	1 00
Bliss' Triumph, Whipps Bros	2 00
Second, John Marvel	1 00
Michigan Rose, Whipps Bros	2 00
Second, John Marvel	1 00
Pride of America, Whipps Bros	2 00
Second, Sol. H. Hayes, Elizabethtown, Ohio	1 00
Early Bell, Whipps Bros	2 00
Second, W. H. Bailey, Ben Davis	1 00
Charles Downing, D. Ellwanger & Co.	2 00
Second, Whipps Bros	1 00
Collection Irish potatoes, Whipps Bros.	10 00
Second, John Marvel	5 00
Peck yellow sweet potatoes, J. D. Whitesides, Franklin	2 00
Second, D. Ellwanger & Co	1 00
Peck red sweet potatoes, Theodore Wilson, Indianapolis	2 00
Second, Charles Becker, West Indianapolis	1 00
Collection sweet potatoes, Theodore Wilson, Indianapolis	5 00
Second, D. Ellwanger & Co	3 00
Number of entries, 134.	

CLASS XXXVI—Grain and Seeds.

Twenty-five ears Early Dent field corn, Robison & Son, Rockport	\$5 00
Second, Lee Trout, Franklin	2 00
Twenty-five ears yellow corn, J. D. Whitesides, Franklin	5 00
Second, J. A. Heavenridge, Liberty	2 00
Twenty-five ears white corn, John Tilson, Franklin	5 00
Second, J. D. Whitesides, Franklin	2 00
Twenty-five ears corn, any color, Robison & Son, Rockport	5 00
Second, J. D. Whitesides	2 00
Twenty-five ears hominy corn, John Marvel, Royalton	2 00
Second, Whipps Bros., Marion, Ohio	1 00

White popcorn, Frank Williamson, Nora	\$2 00
Second, John Marvel	1 00
Red popcorn, John Marvel	2 00
Second, Lee Trout	1 00
Any other color popcorn, William Ennis, Clermont	2 00
Second, John Marvel	1 00
Display of corn, J. D. Whitesides, Franklin	10 00
Second, William Ennis, Clermont	5 00
Half bushel white wheat, Whipps Bros	5 00
Second, Jas. Riley, Thorntown	2 00
Half bushel red wheat, Whipps Bros.	5 00
Second, Lee Trout, Franklin.	2 00
Display of wheat, James Riley, Thorntown	10 00
Second, John Marvel	5 00
Half bushel rye, D. Ellwanger & Co.	2 00
Second, James Riley	1 00
Half bushel white oats, Whipps Bros.	2 00
Second, James Riley	1 00
Half bushel black oats, John Marvel	2 00
Half bushel buckwheat, Whipps Bros	2 00
Second, William A. Ennis, Clermont.	1 00
Half bushel barley, Whipps Bros	2 00
Second, D. Ellwanger & Co	1 00
Half bushel flax seed, W. A. Ennis	2 00
Second, Scott Swain, Clermont	1 00
Half bushel millet seed, John Marvel	2 00
Second, W. A. Ennis	1 00
Half bushel timothy seed, John Marvel	2 00
Second, Whipps Bros.	1 00
Half bushel orchard grass seed, John Marvel	2 00
Second, Whipps Bros	1 00
Half bushel Hungarian grass seed, John Marvel	2 00
Second, W. A. Ennis	1 00
Half bushel Kentucky blue grass seed, John Marvel	2 00
Second, Whipps Bros	1 00
Half bushel English blue grass seed, W. A. Ennis	2 00
Second, John Marvel	1 00
Half bushel red clover seed, John Marvel	2 00
Second, James Riley	1 00
Half bushel English clover seed, Robison & Son, Rockport	2 00
Second, John Marvel	1 00
Sample ten pounds broom corn, John Marvel	2 00
Second, Whipps Bros	1 00
Collection grain and seeds, Whipps Bros	10 00
Second, John Marvel	5 00

Collection of farm products by any county or local society, Marion, Ohio,	
County Society	\$20 00
Second, Lawrence Fair Association, E. E. Marvel, Secretary	10 00
Collection grasses, John Marvel	Diploma
Number of entries, 191.	

Committeeman—Ira B. Hurst, Macy, Ind.

CLASS XXXVIII—Bees and Honey.

Queen bee, Julius Moesch, North Indianapolis	\$3 00
Second, Walter S. Pouder, Indianapolis	2 00
Comb honey, not less than ten pounds, quality and manner of putting up for market to be considered, J. C. Zimmerman, Wabash.	5 00
Second, R. S. Russell, Zionsville	3 00
Extracted honey, not less than twenty pounds, quality and manner of put- ting up for market considered, R. S. Russell, Zionsville	5 00
Second, Julius Moesch, North Indianapolis.	3 00
Display of honey, the product of one apiary of the present year, George H. Kirkpatrick, Portland	15 00
Second, J. C. Zimmerman	10 00
Display of wax, not less than ten pounds, Walter S. Pouder, Indianapolis. .	2 00
Second, Aaron Hunt, Gordon, Ohio	1 00
Display of apiarian supplies, J. C. Zimmerman, Wabash	5 00
Second, George H. Kirkpatrick.	3 00
Apparatus for the manufacture of comb foundation, to include all neces- sary articles for its manufacture, the owner to manufacture comb during time of exhibit, J. C. Zimmerman, Wabash	5 00
Second, George H. Kirkpatrick.	3 00
Comb foundation for use in brood nest, Julius Moesch, North Indianapolis.	2 00
Second, Walter S. Pouder	1 00
Comb foundation for surplus honey, Walter S. Pouder, Indianapolis	2 00
Second, Julius Moesch	1 00
Honey extractor, Aaron Hunt, Gordon, Ohio	2 00
Second, J. C. Zimmerman	1 00
Wax extractor, J. C. Zimmerman	2 00
Second, Aaron Hunt	1 00
Honey vinegar, not less than one gallon, Julius Moesch	2 00
Second, J. C. Zimmerman	1 00
Section box for surplus honey, Julius Moesch	2 00
Second, Aaron Hunt	1 00
Display of wholesale packages and crates for honey, J. C. Zimmerman. . .	2 00
Second, George H. Kirkpatrick	1 00
Display of retail packages for extracted honey, George H. Kirkpatrick . .	2 00
Second, Walter S. Pouder.	1 00

Collection of honey plants, not less than six varieties, properly labeled in
order, with date of bloom, Julius Moesch \$10 00
Second, Mrs. W. A. Moore, Indianapolis 5 00
Number of entries, 96.

Committeeman—I. N. Cotton, Traders' Point.

HORTICULTURAL DEPARTMENT.

R. M. LOCKHART, Superintendent.

CLASS XXXIX—Apples.

Twenty varieties apples, W. W. Farnsworth, Waterville, Ohio.	\$12 00
Second, Joel Hartman, Waterloo	8 00
Twelve varieties apples, W. W. Farnsworth	8 00
Second, Dan Thomas, Waterloo	4 00
Six varieties apples, W. A. Miller, Vincennes	4 00
Second, W. W. Farnsworth	2 00
Maiden's Blush, W. W. Farnsworth	1 00
Second, Al Benjamin, Waterloo	50
Smith's cider, Fred Detraz, Craig	1 00
Second, W. W. Farnsworth	50
Ben Davis, Fred Detraz	1 00
Second, Mrs. W. B. Flick, Lawrence	50
Bome Beauty, W. A. Miller, Vincennes	1 00
Second, Fred Detraz	50
Winesap, Fred Detraz	1 00
Second, W. A. Miller	50
Rambo, W. A. Miller	1 00
Second, Fred Detraz	50
Yellow Belleflower, W. W. Farnsworth	1 00
Second, W. A. Miller	50
Fallawater Tulpehocken, W. W. Farnsworth	1 00
Second, W. H. Bailey, Ben Davis	50
Fall Pippin, W. W. Farnsworth	1 00
Second, Sol. H. Hays, Elizabethtown, Ohio	50
Clayton, Mrs. W. B. Flick	1 00
Second, W. W. Farnsworth	50
White Pippin, W. A. Miller	1 00
Second, Sol. H. Hays	50

PREMIUM AWARDS.

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Baldwin, Fred Detraz, Craig	\$1 00
Second, W. W. Farnsworth	50
Northern Spy, W. W. Farnsworth	1 00
Second, James Clark, Waterloo	50
Grimes' Golden, W. W. Farnsworth	1 00
Second, W. A. Miller	50
Chenango Strawberry, W. W. Farnsworth	1 00
Ohio Nonpareil, W. W. Farnsworth.	1 00
Belmont, W. W. Farnsworth	1 00
Second, Rachael Harms, Waterloo.	50
Jonathan, Fred Detraz	1 00
Second, Sol. H. Hays	50
Talmon Sweet, Sol. H. Hays.	1 00
Second, W. W. Farnsworth	50
Holland Pippin, Mrs. W. B. Flick	1 00
Vandever Pippin, W. W. Farnsworth.	1 00
Second, Sol. H. Hays.	50
Twenty Ounce, W. W. Farnsworth	1 00
Second, D. Lockmeyer, Waterloo.	50
Gloria Mundi, L. W. Ellis, Bloomington	1 00
Second, W. W. Farnsworth	50
Wealthy, W. W. Farnsworth.	1 00
Stark, Fred Detraz.	1 00
Second, W. W. Farnsworth.	50
Crab apples, Sol. H. Hays.	1 00
Second, Fred Detraz	50
New Seedling, Fred Detraz	1 00
Second, Mrs. W. B. Flick	50
Number of entries, 107.	

Committeeman—S. H. Linton, Tilman, Carroll County.

CLASS XL.

Pears.

Ten varieties, W. W. Farnsworth, Waterville, Ohio	\$8 00
Five varieties autumn pears, W. W. Farnsworth, Waterville, Ohio.	4 00
Plate Seedlings, not before exhibited, W. W. Farnsworth, Waterville, Ohio.	1 00

Peaches and Quinces.

Show of quinces, not less than 12 specimens, Wm. Mustard, Broad Ripple	\$3 00
Show of peaches, W. W. Farnsworth, Waterville, Ohio	3 00

Grapes grown in open air.

Five varieties, W. W. Farnsworth, Waterville, Ohio	\$5 00
Three varieties, W. W. Farnsworth, Waterville, Ohio	3 00
Five clusters, any kind, S. Johnson, Irvington.	2 00
Number of entries, 25.	

Committeeman—S. H. Linton.

CLASS XLI—Sweepstakes.

Display of fruits, all kinds, W. W. Farnsworth, Waterville, Ohio	\$25 00
Display of fruits by county or local society, Northeastern Ind. Ag'l Ass'n .	25 00
Second, Waterville, Ohio, Association.	15 00
Peck of apples, any variety, L. Hening, Waterloo	6 00
Second, Daniel Lockmeyer, Waterloo	4 00
Third, R. M. Lockhart	2 00
Peck of pears, any variety, W. W. Farnsworth	5 00
Second, Mrs. W. B. Flick	3 00
Third, Miss Vina Brady, Lawrence	2 00

PREMIUMS OFFERED BY THE INDIANA HORTICULTURAL SOCIETY.

CLASS XLII.

Premiums competed for only by county or local Horticultural Societies within the State:

Display of fruits of all kind, Monroe Co. Hort. Society, Bloomington . . .	\$60 00
Second, Mitchell Dist. Horticultural Society, Lawrence County	50 00
Third, Switzerland County Horticultural Society, Craig P. O.	40 00

FLORAL DEPARTMENT.

CLASS XLIII—Professional.

Twelve palms, A. Weigand, Indianapolis	\$10 00
Second, Berterman Bros., Indianapolis	8 00
Third, Mrs. Charles Rieman, Indianapolis.	5 00
Twelve fancy caladiums and alacacias, Mrs. Charles Rieman	10 00
Second, Berterman Bros.	7 00
Twenty-five ferns and lycopodium, Mrs. Charles Rieman	10 00
Second, Berterman Bros	7 00
Twelve blooming begonias, Mrs. Charles Rieman	7 00
Second, Berterman Bros	4 00
Twelve foliage begonias, Mrs. Charles Rieman.	7 00
Second, Berterman Bros	4 00
Twelve cannas, Berterman Bros	10 00
Second, Mrs. Charles Rieman	7 00
Twenty-five variegated show plants, A. Weigand	10 00
Second, Mrs. Charles Rieman	7 00
Third, Berterman Bros	5 00
Twelve asters, Mrs. Charles Rieman	5 00
Second, Berterman Bros	3 00
Twelve double geraniums, Mrs. Charles Rieman	6 00
Second, Berterman Bros	4 00
Twelve colens, Mrs. Charles Rieman	6 00
Second, Berterman Bros	4 00
Two vases, either iron, rustic or wire, Mrs. Charles Rieman.	10 00
Second, Berterman Bros	7 00
Three hanging baskets, Charles Wheatcroft, Indianapolis	5 00
Second, Mrs. Charles Rieman	3 00
Third, Berterman Bros	2 00
Display and arrangement of plants, A. Wiegand.	50 00
Second, Berterman Bros	35 00
Third, Mrs. Charles Rieman	20 00
Two funeral designs, Berterman Bros	25 00
Second, Mrs. Charles Rieman	15 00
Third, A. Wiegand.	10 00
Three baskets, Mrs. Charles Rieman	20 00
Second, Berterman Bros	15 00
Third, A. Wiegand	10 00
Five bouquets, Berterman Bros	10 00
Second, A. Wiegand	7 00
Third, Mrs. Charles Rieman	5 00

Collection cut roses, Frank Saak, Indianapolis.	\$10 00
Second, Mrs. Charles Rieman	7 00
Third, Berterman Bros	5 00
Collection cut flowers, Berterman Bros	15 00
Second, Mrs. Charles Rieman	10 00
Third, Frank Saak.	5 00
Collection cut gladiolus, Berterman Bros	15 00
Second, Frank Saak.	10 00
Third, Mrs. Charles Rieman	5 00
Best and most original show design, Berterman Bros.	50 00
Second, Mrs. Charles Rieman	35 00
Best and most original funeral design, A. Wiegand.	50 00
Second, Berterman Bros	35 00
Third, Mrs. Charles Rieman	20 00
Number of entries, 54.	

Committeemen—J. J. Hatfield, Edward Corneli and George R. Graham.

CLASS XLIV—Amateur.

Collection begonias, Mrs. M. B. Danley, Indianapolis.	\$5 00
Second, Mrs. S. H. Wright, Indianapolis	3 00
Third, Mrs. E. A. Parker, Indianapolis	1 00
Collection asters in bloom, Mrs. M. B. Danley	4 00
Second, Mrs. S. H. Wright	2 00
Collection cannas, Mrs. M. B. Danley	4 00
Collection climbing plants, Mrs. M. B. Danley	4 00
Second, Mrs. S. H. Wright.	2 00
Three hanging baskets, Mrs. E. A. Parker.	3 00
Second, Mrs. S. H. Wright.	2 00
Third, Mrs. C. B. McChesney, Indianapolis	1 00
General collection plants, Mrs. M. B. Danley	8 00
Second, Mrs. S. H. Wright.	4 00
Collection geraniums, Mrs. M. B. Danley.	3 00
Second, Mrs. E. A. Parker	2 00
Third, Mrs. P. D. Stagg, Greensburg	1 00
Collection roses, Mrs. M. B. Danley	4 00
Second, Mrs. E. M. Bronson, Indianapolis	2 00
Collection verbenas, Mrs. M. B. Danley.	3 00
Second, Mrs. F. J. Crisler, Greensburg	2 00
Third, Leroy Rawlings, Danville.	1 00
Collection dahlias, Mrs. E. J. Crisler.	3 00
Second, Mrs. P. D. Stagg, Greensburg	2 00
Third, Leroy Rawlings	1 00

PREMIUM AWARDS.

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Collection gladiolus, Mrs. P. D. Stagg	\$3 00
Second, Mrs. M. B. Danley	2 00
Design of cut flowers, Mrs. E. J. Crisler	8 00
Second, Mrs. E. M. Bronson.	4 00
Third, Mrs. P. D. Stagg	2 00
Specimen plant of any kind, Mrs. E. A. Parker, Certificate Membership, Indiana Florists.	

WOMAN'S DEPARTMENT.

ROBERT MITCHELL, Superintendent.

CLASS XLV—Old Ladies' Section.

Silk quilt, fancy patchwork, Mrs. L. A. Moore, Terre Haute	\$2 00
Second, Mrs. F. G. Hinsey, Pekin, Illinois	1 00
Crazy Quilt, Mrs. F. G. Hinsey, Pekin, Illinois.	2 00
Second, Mrs. E. S. Sill, Indianapolis	1 00
Worsted quilt, Mrs. L. A. Moore, Terre Haute	2 00
Second, C. Ward, Rising Sun.	1 00
Calico quilt, Mrs. F. G. Hinsey, Pekin, Illinois	2 00
Second, Mrs. Sarah A. Chambers, New Bethel	1 00
Quilt outline, Mrs. C. Dille, Greensburg	2 00
Second, Mrs. Purman, Indianapolis	1 00
Rug, Mrs. S. E. Sill, Indianapolis	2 00
Second, Mrs. Spalding, Anderson	1 00
Spread, knit, Mrs. J. Stem, Indianapolis	2 00
Second, Mrs. Spalding, Anderson	1 00
Spread, crochet, Mrs. P. Levinson, Shelbyville	2 00
Second, Mrs. D. Gordon, Fostoria, Ohio	1 00
Hand-knit silk mittens, Mrs. F. G. Hinsey, Pekin, Illinois	2 00
Second, Mrs. C. Dille, Greensburg	1 00
Hand-knit silk stockings, Mrs. Lizzie Walters, Vevay	2 00
Second, Mrs. C. Ward, Rising Sun	1 00
Hand-knit silk socks, Mrs. F. G. Hinsey, Pekin.	2 00
Second, Mrs. C. Ward, Rising Sun	1 00
Hand-knit woolen stockings, Mrs. L. A. Moore, Terre Hante.	1 50
Second, Mrs. F. G. Hinsey, Pekin, Illinois.	1 00
Hand-knit woolen socks, Mrs. C. Ward, Rising Sun	1 00
Hand-knit cotton socks, Mary Voris, Vevay	1 00
Fancy knit worsted mittens, Mrs. P. Levinson, Shelbyville	1 00
Worsted crochet mittens, Mrs. P. Levinson, Shelbyville	1 00

BOARD OF AGRICULTURE.

ing, Mrs. John Bromley, Crawfordsville.	\$2 00
, Miss May A. Clark, Tippecanoe City, Ohio	1 00
k, Mrs. E. Kirk, Shelbyville,	2 00
, Mrs. J. Leibhardt, Knight-town	1 00
ed table cover, Mrs. C. W. Levings, Englewood	2 00
, Mrs. J. Leibhardt, Knightstown.	1 00
cover, Mrs. A. R. Banley, Marion	2 00
, Mrs. C. Dille, Greensburg	1 00
embroidered, Mrs. E. Kirk, Shelbyville	2 00
, Mrs. J. Leibhardt, Knightstown	1 00
scarf, Mrs. A. R. Banley, Marion	2 00
, Mrs. C. Dille, Greensburg	1 00
lace display, Mrs. E. Kirk, Shelbyville	2 00
, Mrs. C. Dille, Greensburg	1 00
r display, Mrs. L. A. Moore, Terre Haute.	2 00
, Mrs. C. Dille, Greensburg	1 00
r, cotton or linen display, Miss May A. Clark	2 00
, Mrs. Barbour, Indianapolis	1 00
r, silk specimen, Mrs. J. Leibhardt	2 00
, Mrs. L. A. Moore, Terre Haute	1 00
ibroidery, Mrs. Murphy, Newcastle	2 00
, Mrs. Spalding, Anderson	1 00
colored specimen, Mrs. C. Dille, Greensburg	2 00
, Mrs. E. Kirk, Shelbyville	1 00
nting, Mrs. E. Browning, Shelbyville	2 00
, Eliza Coval, Indianapolis	1 00
r of entries, 255.	

tee—Attie Hudson, Mrs. M. C. Witherspoon and Mrs. well.

CLASS XLVI—Knitting and Crochet Work.

it shirt, Mrs. Sophia Grove, Anderson	\$1 50
tchet shirt, Miss Lola Burke, Quincy, Illinois	1 00
.t socks, Mrs. T. G. Hinsey, Pekin, Illinois	1 00
tchet socks, Mrs. T. G. Hinsey, Pekin, Illinois	1 00
silk mittens, Mrs. A. G. Jackson, Vevay	2 00
, Mrs. A. G. Hinsey, Pekin, Illinois	1 00
woolen mittens, Mrs. A. G. Hinsey, Pekin, Illinois	1 50
, Mrs. P. D. Stagg, Greensburg	1 00
silk stockings, Mrs. C. C. Burns, Greensburg	2 00
, Mrs. P. D. Stagg, Greensburg	1 00
fancy woolen stockings, Mrs. P. D. Stagg	1 50
, Mrs. W. J. Crisler, Greensburg	1 00

Thread or silk crotchet baby cap, Miss Lola L. Burke, Quincy.	\$1 50
Second, Mrs. E. B. Kirk, Shelbyville.	1 00
Crochet fascinator, Miss E. Van Anda, Indianapolis.	2 00
Second, Maud E. Hinsey, Pekin, Illinois	1 00
Crochet sacque, Maud E. Hinsey, Pekin, Illinois.	1 50
Second, Mrs. A. D. McLead, Sandusky, Ohio.	1 00
Knit sacque, Mrs. A. D. McLead, Sandusky, Ohio.	1 50
Second, Mrs. A. Sammons, Michigan City	1 00
Crochet tidy, Mrs. T. W. Gifford, Tireston Four-Corners, Rhode Island. . .	1 50
Second, Maud E. Kinsey, Pekin, Illinois	1 00
Thread tidy, knit, Maud E. Kinsey, Pekin, Illinois	1 50
Second, Mrs. C. W. Levings, Englewood.	1 00
Afghan, Maud E. Kinsey, Pekin, Illinois	2 00
Second, Laura Landier, Indianapolis	1 00
Afghan, infant's, Mrs. P. D. Stagg, Greensburg	1 50
Second, Mrs. A. G. Jackson, Vevay	1 00
Counterpane, knit, Mrs. F. G. Hinsey, Pekin, Illinois.	2 00
Second, Mrs. H. A. Bowman, Covington	1 00
Counterpane, crochet, Mary Gillett, Indianapolis.	2 00
Second, Hester Klinck, Indianapolis	1 00
Lace bed set, Mrs. H. P. Clark, Indianapolis	2 00
Second, Rosa Wintrout, Indianapolis	1 00
Crochet lace display, Mrs. Sophia Anderson	2 00
Second, Mrs. Sarah Levinson, Shelbyville	1 00
White lace display, Mrs. C. W. Levings, Englewood	2 00
Second, Mrs. H. A. Bowman, Covington.	1 00
Crochet skirt, Mary R. Heron, Indianapolis	2 00
Second, Mary Content, Crawfordsville	1 00
Knit skirt, Mrs. T. L. Leist, Indianapolis.	2 00
Second, Miss Hammerle, Indianapolis	1 00
Crochet slippers, Mrs. Murphy, Newcastle.	2 00
Second, Mrs. Allen Sammons, Indianapolis	1 00
Silk purse, Mrs. P. D. Stagg, Greensburg	1 50
Second, Mrs. C. Dille, Greensburg	1 00
Number of entries, 319.	

Committee—Attie Hudson, Mrs. M. C. Weatherspoon and Mary E. Engle.

CLASS XLVII—Lace Work.

Point lace display, Mrs. H. H. Pontius, Crawfordsville.	\$3 00
Second, Alice Webb, Alpine	2 00
Point lace specimen, Mrs. H. H. Pontius, Crawfordsville	2 00
Second, Alice Webb, Alpine	1 00
Tatting display, Mrs. E. B. Kirk, Shelbyville	2 00
Second, Mrs. E. R. Hunt, Rising Sun	1 00

Featheredge display, Mrs. Sophia Grove, Anderson	\$2 00
Second, Mrs. Mary Edhard, Indianapolis	1 00
Display rick-rack work, Miss Sarah Levison, Shelbyville	2 00
Second, Miss Kittie Herron, Indianapolis.	1 00
Novelty braid display, Miss Kate Girdner, Indianapolis	2 00
Second, Mrs. J. Leibhard, Knightstown	1 00
Scrim tidy, Miss Mattie Hall, Cincinnati, Ohio	2 00
Second, Mrs. Albert Henley, Carthage.	1 00
Number of entries, 79.	

Committee—Attie Hudson, Mrs. M. C. Witherspoon and Mary E. Engle.

CLASS XLVII—Embroidery.

Linen floss, Mary Rowland, Covington	\$2 00
Second, Maud E. Hinsey, Pekin, Illinois	1 00
Cotton, white, Mrs. P. D. Stagg, Greensburg	2 00
Second, Mrs. C. Dille, Greensburg	1 00
Cotton, colored specimen, Helga Renson, Indianapolis	2 00
Second, Miss May A. Clark, Tippecanoe City, Ohio	1 00
Lunch set, Maud E. Hinsey.	3 00
Second, Mrs. H. T. Tanner, Paris, Illinois.	2 00
Napkin set, Mrs. B. Dugan, Indianapolis.	2 00
Second, Mrs. L. A. Moore, Terre Haute.	1 00
Doyley set, Miss Mary R. Heron, Indianapolis	2 00
Second, Mrs. A. Dunning, Marion	1 00
Tray cloth, Mrs. C. H. Smith, Detroit, Michigan	2 00
Second, Miss Mary R. Heron	1 00
Handkerchief, Mrs. J. Leibhardt, Knightstown	2 00
Second, Miss Julia Bromley, Crawfordsville	1 00
Silk, white display, Mrs. S. C. Hills, Delaware, Ohio.	2 00
Second, Mrs. C. L. Kellogg, Westfield, Massachusetts	1 00
Silk, colored specimen, Mrs. J. Leibhardt, Knightstown	3 00
Second, Marguerite Hills, Delaware, Ohio	2 00
Silk skirt, Maud E. Hinsey, Pekin, Illinois	2 00
Second, Mrs. C. Dille, Greensburg	1 00
Silk infant's shawl, Maud E. Hinsey, Pekin, Illinois	2 00
Second, Mrs. B. Dugan, Indianapolis.	1 00
Table cover, Mrs. B. Dugan, Indianapolis.	3 00
Second, Mrs. L. A. Moore, Terre Haute	2 00
Table scarf, Maud E. Kinsey, Pekin, Illinois	2 00
Second, Mrs. T. Bradford, Falmouth.	1 00
Piano scarf, Mrs. Allen Sammons, Indianapolis	2 00
Second, Anna Weghorst, Indianapolis	1 00
Sofa cushion, Miss Fannie McCormick, Indianapolis	2 00
Second, Mrs. C. L. Kellogg, Westfield, Massachusetts	1 00

Toilet cushion, H. S. Tanner, Paris, Illinois	\$2 00
Second, Maud E. Hinsey, Pekin, Illinois	1 00
Mantel lambrequin, Maud E. Hinsey, Pekin, Illinois	3 00
Second, Mrs. L. A. Moore, Terre Haute.	2 00
Outline display, Miss Fannie McCormick.	2 00
Second, Maud E. Hinsey, Pekin, Illinois	1 00
Outline specimen, Maud E. Hinsey, Pekin, Illinois	2 00
Second, Miss Fannie McCormick	1 00
Kensington specimen, Mrs. C. L. Kellogg, Westfield	2 00
Second, H. S. Tanner, Paris, Illinois	1 00
Tapestry, Mrs. L. A. Moore, Terre Haute.	2 00
Second, Miss Mattie Hall, Cincinnati, Ohio	1 00
Chenille, specimen, Mrs. C. H. Smith, Indianapolis.	2 00
Second, Miss Fannie McCormick	1 00
Arasene, wool, Mrs. J. Leibhardt, Knightstown	2 00
Second, Mrs. C. L. Kellogg, Westfield	1 00
Arasene, silk, Mrs. J. Leibhardt, Knightstown	2 00
Second, Nettie Camplin, Indianapolis	1 00
High art needlework, Mrs. C. L. Kellogg, Westfield	3 00
Second, Maud E. Kinsey, Pekin, Illinois	2 00
Ribbon, specimen, Mrs. Sophia Grove, Anderson	2 00
Second, Miss Mattie Hall, Cincinnati, Ohio	1 00
Smyrnaesne, specimen, Maud E. Hinsey	2 00
Second, Miss Fannie McCormick	1 00
Fire screen, mounted, Mrs. L. P. Good, Indianapolis.	3 00
Second, Mrs. L. E. Campbell, Indianapolis	2 00
Tinting and embroidery, Minnie W. Payne, Indianapolis	2 00
Second, Miss Fannie McCormick, Indianapolis	1 00
Silk or linen rope, Miss Fannie McCormick, Indianapolis	2 00
Second, Mrs. C. C. Burns, Greensburg	1 00
Queen Anne darning, Mrs. A. Dunning, Marion	2 00
Second, Mrs. Sophia Grove, Anderson	1 00
Roman embroidery, Mrs. Sarah Levinson, Shelbyville	2 00
Second, Mrs. C. C. Burns, Greensburg	1 00
Sorrento embroidery, Mrs. C. Dille, Greensburg	2 00
Second, Mrs. C. Dille, Greensburg	1 00
Etching in silk, Maud C. Hinsey, Pekin, Illinois	3 00
Second, Miss Mattie Hall, Cincinnati, Ohio.	2 00
Towel, Mary Dugan, Indianapolis	2 00
Second, Mary Dugan, Indianapolis	1 00
Chamois, Mrs. S. P. Stoddard, Indianapolis	2 00
Second, Mrs. A. Dunning, Marion	1 00

Number of entries, 511.

Committee—Lillie M. Brysland, Waterloo, and Mrs. E. H. Owen, Bloomingdale.

CLASS XLIX—Machine and Hand Sewing.

Machine work, apron, Miss Francis Cummings, Indianapolis.	\$2 00
Second, Sarah Levinson, Shelbyville.	1 00
Quilt, velvet, Mrs. J. Leibhard, Knightstown.	3 00
Second, Miss Mary Constant, Crawfordsville	2 00
Quilt, silk, needlework, Maud E. Kinsey, Pekin, Illinois.	3 00
Second, Mrs. Ed Kahn, Newcastle	2 00
Crazy quilt, Mrs. C. E. Merrifield, Indianapolis	2 00
Second, Mrs. Allen Sammons, Indianapolis	1 00
Silk or velvet quilt, Roman stripe, Mrs. Alice Hess, Indianapolis	2 00
Second, Mrs. H. H. Pontius, Crawfordsville	1 00
Drawn work, Mrs. C. Dille, Greensburg	2 00
Second, Miss Maud Buck, Indianapolis	1 00
Drawn work, underwear, Miss Rebecca Bullock, Falmouth	2 00
Second, Laura Bragg, Trader's Point.	1 00
Infant's outfit, Mrs. C. Dille, Greensburg	3 00
Second, Mrs. Murphy, Newcastle	2 00
Pillow shams, embroidered, Maud E. Hinsey	2 00
Second, Mrs. L. A. Moore, Terre Haute	1 00
Pillow shams, fancy, Mrs. Sarah Levinson, Shelbyville	2 00
Second, Mrs. Edwin Roux, Indianapolis	1 00
Machine embroidery, Mrs. Sarah Levinson, Shelbyville	3 00
Second, Mrs. A. G. Jackson, Vevay	2 00
Number of entries, 117.	

Committee—Mrs. E. H. Owen, Bloomingdale, and Lillie M. Brysland, Waterloo.

CLASS L—Miscellaneous.

Wax flowers, Susie E. Martin, Indianapolis.	\$2 00
Second, Susie E. Martin, Indianapolis	1 00
Wax fruit, Susie E. Martin, Indianapolis	2 00
Second, Susie E. Martin, Indianapolis	1 00
Wax work, Susie E. Martin, Indianapolis	2 00
Second, Susie E. Martin, Indianapolis	1 00
Handkerchief sachet, Mrs. C. de L. Thompson, St. Louis, Missouri	1 50
Second, A. M. Kistner, Indianapolis	1 00
Glove box, Mrs. E. B. Kirk, Shelbyville	1 50
Second, Maud E. Hinsey, Pekin, Illinois	1 00
Broom holder, Mrs. P. D. Stagg, Greensburg	1 50
Second, Miss Fannie McCormick, Indianapolis	1 00
Toilet cushion, embroidered, Mrs. A. M. Kistner, Indianapolis	2 00
Second, Miss Mary R. Heron, Indianapolis	1 00

Sofa pillow, Miss Fannie McCormick	\$2 00
Second, Mrs. Allen Sammons, Indianapolis	1 00
Toilet scarf, Mrs. Ed Kahn, Newcastle	2 00
Second, Mrs. Allen Sammons, Indianapolis	1 00
Toilet cushion, Maud E. Kinsey, Pekin, Illinois	1 50
Second, Miss Fannie McCormick, Indianapolis	1 00
Wall pocket, fancy, Miss Sallie Crow, Greencastle	1 50
Second, Mrs. Edwin Rous, Indianapolis	1 00
Infant's nursery basket, Mrs. Murphy, Newcastle	1 00
Tidy, not crochet, Maud E. Kinsey, Pekin, Illinois	2 00
Second, Etta Duncan, Covington	1 00
Stuffed and mounted animals, Clara Snyder, Haughville	3 00
Upholstery work, chair, Miss Fannie McCormick	3 00
Rug, Mrs. C. Dille, Greensburg	2 00
Second, W. A. Wainwright, Noblesville	1 00
Fur rug, A. J. Vanhook, Indianapolis	3 00
Second, Mrs. O. L. Jeffries, Newcastle	2 00
Tea cosy, made up, Maud E. Kinsey, Pekin	1 50
Second, Mrs. Allen Sammons, Indianapolis	1 00
Lunch set, not embroidered, Mrs. Sophia Grove, Anderson	2 00
Second, Mrs. E. B. Kirk, Shelbyville	1 00
Doyleys, not embroidered, Mrs. Allen Sammons	2 00
Second, Mrs. Ed. Kahn, Newcastle	1 00
Hostess cloth, Maud E. Kinsey, Pekin, Illinois	2 00
Second, Mrs. C. C. Burns, Greensburg	1 00
Slumberine, Maud E. Hinsey, Pekin, Illinois	1 50
Second, Mrs. C. E. Merrifield, Indianapolis	1 00
Reticule, Miss Bessie Tompkins, Irvington	1 50
Second, Miss Anna Weghorst, Indianapolis	1 00
Fancy apron, Mrs. Edwin Rouse, Indianapolis	1 50
Second, Mrs. Allen Sammons, Indianapolis	1 00
Kitchen apron, Mrs. Engle, Indianapolis	1 50
Fancy satchets, Mrs. C. de L. Thompson, St. Louis, Missouri	1 50
Second, Miss Fannie McCormick, Indianapolis	1 00
Drape or throw display, Mrs. C. L. Kellogg, Westfield	2 00
Second, Mrs. O. L. Jeffries, Newcastle	1 00
Banners, not painted, Anna Weghorst, Indianapolis	3 00
Second, M. T. Flannery, Indianapolis	2 00
Housewife, Mrs. Sophia Grove, Anderson	1 50
Second, Maud E. Kinsey, Pekin, Illinois	1 00
Photograph holder, Nettie Camplin, Indianapolis	1 50
Second, Mrs. C. L. Kellogg, Westfield	1 00
Laundry bag, Mrs. P. D. Stagg, Greensburg	1 50
Second, Mrs. C. Dille, Greensburg	1 00
Darning bag, Mrs. P. D. Stagg, Greensburg	1 50
Second, C. Dille, Greensburg	1 00

Paper ornaments, Evilina H. Fairman, Spring Lake	\$1 00
Dust bag, Mrs. C. Dille, Greensburg	1 50
Second, Miss Fannie McCormick, Indianapolis	1 00
Number of entries, 369.	

Committee—Mrs. W. B. Flick, Attie Hudson and Mrs. M. C. Witherspoon.

CLASS LI—Business Exhibits.

Display millinery, Mrs. McKernan, Indianapolis	\$35 00
Second, Mrs. B. Samuels, Indianapolis	30 00
Display dressmaking, Mrs. West, Anderson	20 00
Second, Josie Sullivan, Anderson	15 00
Display hair work, Miss Mary Phelan, Indianapolis.	20 00
Number of entries, 7.	

Committee—Pearle E. Tyner, Laura R. Blackstock and Louise Hawkins.

CLASS LII—Decorative Art Work.

Hammered or repousse work, Mrs. McCullough, Indianapolis	\$2 00
Second, Fannie McCormick, Indianapolis	1 00
French decorative work, Frances Cummings, Indianapolis	1 50
Second, Mrs. Mabel Ennis, Indianapolis	1 00
French decorative work, mineral display, Mrs. Mabel Ennis, Indianapolis.	1 50
Second, Mrs. S. J. Gill, Indianapolis	1 00
Etching, display, Mrs. Allen Sammons, Indianapolis	3 00
Second, Mrs. Sophia Grove, Anderson	2 00
Modeling in clay, Etta Dungan, Covington	3 00
Second, Miss Carrie Peddle, Terre Haute	2 00
Wood carving, display, Mrs. S. P. Stoddard, Indianapolis	8 00
Second, Mrs. E. Morris, Indianapolis	5 00
Wood carving, specimen, Mrs. I. C. Pugh, Indianapolis.	3 00
Second, Mrs. Sallie Crow, Greencastle	2 00
Pottery painting, Limoges, display, Mrs. S. P. Stoddard, Indianapolis.	3 00
Pottery painting, Limoges, specimen, Mrs. S. P. Stoddard, Indianapolis.	2 00
Painting on china, tableware, display, Miss L. J. Hill, Knightstown	5 00
Second, Mrs. J. C. Walker, Indianapolis	3 00
Painting on china, tableware, specimen, Miss Lillian Hill, Indianapolis	3 00
Second, Irma Thomas, Terre Haute	2 00
Painting on china, ornamental pieces, Mrs. A. E. Ferry, Indianapolis	3 00
Second, Mrs. J. C. Walker, Indianapolis	2 00
Painting on china, Royal Worcester, Mrs. A. E. Ferry, Indianapolis.	2 00
Second, Irma Thomas, Terre Haute	1 00

Painting on china, relief gold, Mrs. Ed. Kahn, Newcastle	\$1 50
Second, Miss Lillian Hill, Knightstown	1 00
Painting on china, matt colors, Mrs. A. E. Ferry, Indianapolis	1 50
Second, Irma Thomas, Terre Haute	1 00
Painting on china in colored gold, Mrs. Ed. Kahn, Newcastle	1 50
Second, Mrs. Sophia Grove, Anderson	1 00
Platter, Japanese design, old blue, Mrs. A. E. Ferry, Indianapolis	1 50
Rose jar, Mrs. A. E. Ferry, Indianapolis	1 50
Second, Irma Thomas, Terre Haute	1 00
Painting on china, portrait, Irma Thomas, Terre Haute	2 00
Second, Mrs. A. E. Ferry, Indianapolis	1 00
Painting on tiles, original design, Mrs. O. L. Jeffries, Newcastle	3 00
Second, Mrs. A. E. Ferry, Indianapolis	2 00
Painting on glass, Mrs. O. L. Jeffries, Newcastle	1 50
*Second, Mrs. J. B. Meacham, Rockville	1 00
Painting on wood, specimen, Miss Minnie Akass, Indianapolis	3 00
Second, Mrs. F. F. King, Indianapolis	2 00
Painting on silk or satin, display, Mrs. Hills, Delaware, Ohio	3 00
Second, Mrs. J. B. Meacham, Rockville	2 00
Painting on silk or satin, specimen, Mrs. J. B. Meacham, Rockville	1 50
Second, Mrs. J. B. Meacham, Rockville	1 00
Painting on colored velvet, specimen, Mrs. Kellogg, Westfield	2 00
Second, Mrs. A. E. Ferry, Indianapolis	1 00
Painting on bolting cloth, display, Miss Minnie Tuttle, Indianapolis	3 00
Second, Miss Maud Pierson, Indianapolis	2 00
Painting on bolting cloth, specimen, Mrs. Sophia Grove, Anderson	2 00
Second, Mrs. A. M. Kistner, Indianapolis	1 00
Painting on celluloid, Mrs. C. de L. Thompson, St. Louis, Missouri	1 50
Second, Miss Mary R. Heron, Indianapolis	1 00
Painting on chamois skin, Mrs. A. E. Ferry, Indianapolis	1 50
Second, Mrs. Husbands, Indianapolis	1 00
Painting on matting, Mrs. Allen Sammons, Indianapolis	1 50
Second, Mrs. C. E. Merrifield	1 00
Tapestry painting, Mrs. A. E. Ferry, Indianapolis	2 00
Second, Miss Minnie M. Payne, Indianapolis	1 00
Painted fan, Marguerite Hills, Delaware, Ohio	1 50
Second, Mrs. A. E. Ferry, Indianapolis	1 00
Painted toilet set, Mrs. Sophia Grove, Anderson	1 50
Painted fancy card, display, Mrs. A. E. Ferry, Indianapolis	1 50
Second, Mrs. S. C. Hills, Delaware, Ohio	1 00
Blotting pad, Mary Y. Robinson, Indianapolis	1 50
Second, Miss Mary R. Heron, Indianapolis	1 00
Calendars, Mary Y. Robinson, Indianapolis	1 50
Second, Miss Mary R. Heron, Indianapolis	1 00
Burnt poker work, Mrs. Ed. Kahn, Newcastle	2 00

Painted fire screen, Mrs. Purman, Indianapolis	\$3 00
Second, Mrs. O. L. Jeffries, Newcastle	2 00
Original design for decoration in art, Mrs. O. L. Jeffries, Newcastle	3 00
Second, Mrs. C. B. Ingraham, Indianapolis	2 00
Original design in water colors, Mary Y. Robinson, Indianapolis	3 00
Second, Mrs. A. E. Ferry, Indianapolis	2 00
Drawings, original display, Janet Scudder, Terre Haute	3 00
Second, Mary Y. Robinson, Indianapolis	2 00
Specimen original drawings, Mary Y. Robinson, Indianapolis	3 00
Second, Mrs. Purman, Indianapolis	2 00
Display copy drawings, Miss Mary A. Clark, Tippecanoe City, Ohio	3 00
Second, May Ingraham, Indianapolis	2 00
Specimen copy drawings, Mrs. Purman, Indianapolis	2 00
Second, Mrs. O. L. Jeffries, Newcastle	1 00
Figure drawn from oil in twenty minutes, May Ingraham, Indianapolis	1 50
Fancy head in monochrome, Mrs. A. E. Ferry, Indianapolis	1 50
Second, Mrs. C. de L. Thompson, St. Louis, Missouri	1 00
Pen and ink sketch, Janet Scudder, Terre Haute	1 50
Second, May Ingraham, Indianapolis	1 00
Painting on pair panels, water colors, Mrs. C. de L. Thompson, St. Louis	3 00
Second, Mrs. A. E. Ferry, Indianapolis	2 00
Painting on pair panels, oil, Miss Powell, Indianapolis	2 00
Spring scene, oil, Mrs. C. B. Ingraham, Indianapolis	2 00
Second, Lillie Willetts, Indianapolis	1 00
Summer scene, oil, Mrs. J. O. Spahr, Indianapolis	2 00
Second, Alice D. Rogers, Indianapolis	1 00
Autumn scene, oil, Alice D. Rogers, Indianapolis	2 00
Second, Minnie Akass, Indianapolis	1 00
Winter scene, oil, Mrs. King, Indianapolis	2 00
Second, Mrs. C. de L. Thompson, St. Louis, Missouri	1 00
Marine scene, oil, Mrs. C. de L. Thompson, St. Louis, Missouri	2 00
Second, Miss Lillie Willetts, Indianapolis	1 00
Marine scene, water colors, Mrs. A. E. Ferry, Indianapolis	2 00
Second, Irma Thomas, Terre Haute	1 00
Interior scene, oil, Mrs. C. B. Ingraham, Indianapolis	2 00
Second, Mrs. C. de L. Thompson, St. Louis, Missouri	1 00
Number of entries, 300.	

Committee—Pearl E. Tyner, Laura R. Blackstock and Elizabeth M. Baker.

CLASS LIII—Art Work—Amateur.

Crayon drawing, display, Lillie David, Indianapolis	\$3 00
Second, Lulu Hereth, Indianapolis	2 00
Crayon landscape, Lillie Willits, Indianapolis	2 00
Second, Mrs. S. E. Craig, Crawfordsville	1 00
Pastelle painting, Miss Lillie Willett, Indianapolis	3 00
Second, Mrs. Albert Henley, Carthage	2 00
Display painted plaques, Mrs. A. M. Kistner	3 00
Second, Miss Alice D. Rogers, Indianapolis	2 00
Alabaster plaque, Mrs. O. L. Jeffries, Newcastle	2 00
Second, Minnie Akass, Indianapolis	1 00
Display flower painting in oil, Mrs. O. L. Jeffries, Indianapolis	3 00
Second, Minnie Akass, Indianapolis	2 00
Specimen flower painting in oil, Mrs. C. de L. Thompson, St. Louis, Mo	2 00
Second, Mrs. Albert Henley, Carthage	1 00
Display flower painting in water colors, Irma Thomas, Terre Haute	3 00
Second, Nettie Wright, Indianapolis	2 00
Specimen flower painting in water colors, Mrs. C. de L. Thompson, St. Louis	2 00
Second, Mrs. Herbert Rice, Indianapolis	1 00
Fruit painting in oil, Miss Mary Spahr, Indianapolis	3 00
Second, Mrs. Albert Henley, Carthage	2 00
Landscape painting in oil, display, Mrs. A. M. Kistner, Indianapolis	5 00
Second, Lillie David, Indianapolis	8 00
Specimen landscape in oil, Mrs. Purman, Indianapolis	3 00
Second, Mrs. C. de L. Thompson, St. Louis, Missouri	2 00
Landscapes in water colors, Mrs. Rice, Indianapolis	3 00
Second, Mrs. C. de L. Thompson, St. Louis, Missouri	2 00
Portraits in oil, specimen, Mrs. M. A. Gerstner, Indianapolis	5 00
Second, Miss Mary Spahr, Indianapolis	3 00
Sketch from nature in oil, Mrs. Purman, Indianapolis	3 00
Second, Irma Thomas, Terre Haute	2 00
Study from still life, Bessie Warne, Indianapolis	3 00
Second, Miss Caroline Peddle, Terre Haute	2 00
Ideal head or figure, Miss Maud Pierson, Indianapolis	3 00
Second, Harriet Gannon, Indianapolis	2 00
Animal painting, Minnie Akass, Indianapolis	3 00
Second, Miss Maud Pierson, Indianapolis	2 00
Number of entries, 163.	

Committee—Laura R. Blackstock, Pearl E. Tyner and Elizabeth M. Baker.

CLASS LIV.

Portraits in oil, display, not less than five, Mrs. J. O. Spahr, city	
Portrait in oil, specimen, Mrs. A. E. Ferry, city	
Second, Mrs. J. O. Spahr, city	
Portraits, water color, Miss Car. Peddle, Terre Haute	
Portraits, crayon, Mrs. S. E. Craig, Crawfordsville	
Second, Mrs. M. A. Geratner, city	
Landscape in oil, display, Mrs. A. E. Ferry, city	
Sketch from nature, Mrs. A. E. Ferry, city	
Second, Mary Y. Robinson, city	
Fruit or vegetable painting in oil, display, Mrs. A. E. Ferry, city	
Second, Mrs. C. B. Ingraham, city	
Specimen from nature, vegetable painting, Mrs. A. E. Ferry, city	
Second, Mrs. C. B. Ingraham, city	
Flower painting in oil, display, Mrs. A. E. Ferry, city	
Second, Mary Y. Robinson, city	
Flower painting from nature, specimen, Mrs. A. E. Ferry, city	
Second, Mary Y. Robinson, city	
Flower painting, water color, display, Mrs. A. E. Ferry, city	
Second, Mary Y. Robinson, city	
Specimen from nature, Mrs. A. E. Ferry, city	
Second, Mary Y. Robinson, city	
Study from life, in oil, Mary Y. Robinson, city	
Study from life, water colors, Mary Y. Robinson, city	
Drawing from life, Janet Scudder, Terre Haute	
Second, Mrs. A. E. Ferry, city	
Pastelle painting, specimen, Mrs. A. E. Ferry, city	
Crayon drawing, specimen, Mrs. S. E. Craig, Crawfordsville	
Second, Janet Scudder, Terre Haute	
Drawing from antique, figure, Caroline Peddle, Terre Haute	
Second, Mary Y. Robinson, city	
Drawing from antique, head, Caroline Peddle, Terre Haute	
Second, Mary Y. Robinson, city	
Study from still life, in oil, Mrs. C. B. Ingraham, city	
Second, Mary Y. Robinson, city	
Study from still life, water colors, Mary Y. Robinson, city	
Second, Irma Thomas, Terre Haute	
Animal painting, Mrs. J. O. Spahr, city	
Second, Mrs. J. O. Spahr, city	
Ideal head or figure, Mrs. A. E. Ferry, city	
Second, Mary Y. Robinson, city	

CLASS LV.

Butter, three pounds, Louisa Brown, Brightwood	
Second, Miss Mary Walters, city.	
Honey in comb, five pounds, in most marketable shape, Augusta Moesch, Crown Hill.	
Second, Mrs. Zimmerman, Wabash.	
Honey ext., five pounds, in most marketable shape, George H. Kirkpatrick, Portland.	
Second, Mrs. Zimmerman, Wabash.	
Bread, loaf, wheat, yeast, Lizzie Rohan, city.	
Second, Mrs. S. P. Stoddard, city.	
Bread, wheat, salt-rising, Miss Hedrick, city.	
Second, Mrs. G. E. Fernley, Knightstown.	
Graham bread, yeast, Miss Hedrick, city.	
Second, Mrs. Wilson, Knightstown.	
Boston brown bread, Mrs. L. B. Good, city.	
Second, Mrs. S. A. Sherman, city.	
Dozen rolls, Mrs. Hattie Towne, city.	
Second, Miss Hedrick, city.	
Ginger bread, Eliz. Lyon, city.	
Second, Mrs. Mary Rowland, Covington.	
Fig cake, Mrs. Wilson, Knightstown.	
Second, Florence Blue, Mapleton.	
Layer cake, orange, Mrs. Wilson, Knightstown.	
Second, Mrs. E. Bryan, city.	
Layer cake, cocoanut, Mrs. Wilson, Knightstown.	
Second, Mary R. Heron, city.	
Angel food, Mrs. Hattie Towne, city.	
Second, Miss Anna Callahan, city.	
Hickory nut cake, Mrs. Wilson, Knightstown.	
Second, Mrs. Matthews, city.	
Imperial cake, Miss E. Bryan, city.	
Second, Mollie Ford, city.	
Fruit cake, Mrs. C. C. Hamilton, Rushville.	
Second, M. Weghorst, city.	
Pork cake, Mrs. S. A. Howard, city.	
Second, Mrs. Jennie Young, city.	
White cake, Mrs. Mary Watters, city.	
Second, Mrs. Wilson, Knightstown.	
Chocolate cake, layers, Mrs. G. Baber, city.	
Second, Mrs. Wilson, Knightstown.	
Chocolate cake, loaf, M. L. Fox, city.	
Second, Miss Jennie Singer, city.	
Crullers, Sophia Grove, Anderson.	
Second, Mrs. Matthews, city.	

Cream puffs, Mrs. S. H. Wright, city	
Second, M. Weghorst, city	
Black pudding, S. C. Hartzog, Frankfort	
English plum pudding, F. C. Hartzog, Frankfort	
Jellies, collection, Mrs. E. Speer, city	
Second, Mrs. E. R. Hunt, Rising Sun	
Preserves, collection, not less than 1 pint each, Mrs. Wilson, Knightstown .	
Second, Mrs. E. R. Hunt, Rising Sun	
Fruit butters, collection, not less than 1 pint each, Mrs. E. R. Hunt, Rising	
Sun	
Second, Mrs. C. C. Hamilton, Rushville	
Canned fruit, collection, not less than 1 pint each, Mrs. J. E. Harris, city . .	
Second, Mrs. E. R. Hunt, Rising Sun	
Salad, meat, Mrs. J. T. McCune, city	
Salad, fish, Mrs. Hale, city	
Salad, vegetable, Miss E. Bryan, city	
Second, Mrs. J. T. McCune, city	
Cheese straws, Mrs. J. H. Greenstreet, city	
Second, Mrs. C. Ward, city	
Saratoga chips, Eliz. Lyon, city	
Second, S. C. Hartzog, Frankfort	
Boiled tongue, J. E. Harris, city	
Second, N. A. Ford, city	
Cooked ham, N. A. Ford, city	
Second, Mrs. C. Ward, city	
Beef loaf, Mrs. Lucas, city	
Second, Mrs. Randall, city	
Sweet pickles, collection, Mrs. E. R. Hunt, Rising Sun	
Second, Mrs. S. A. Howard, city	
Pickles, mixed, Mrs. Jennie Young, city	
Second, Mrs. S. A. Howard, city	
Pickles, cucumber, Mrs. H. M. Heron, city	
Second, Mrs. Mary Watters, city	
Tomato catsup, not less than 1 pint, Mrs. E. A. Parker, city	
Second, Mrs. G. E. Townley, city	
Cucumber catsup, Bertha Hawkins, city	
Second, Mrs. W. B. Flick, Lawrence	
Chili sauce, M. Weghorst, city	
Second, Mrs. W. B. Flick, Lawrence	
Boston baked beans, Mrs. L. P. Good, city	
Second, Miss Hedrick, city	
Baked apples, Sophia Grove, Anderson	
Second, Mrs. J. B. Powers, city	
Cranberry sauce, not less than 1 quart, Mrs. H. W. Heron, city	
Second, Mrs. J. B. Powers, city	

Gelatine dessert, in any form, Lizzie Rohan, city
 Second, Mrs. Hale, city
 French candies, home-made, Mrs. Matthews, city
 Second, Miss Sadie Parker, city
 Collection taffies, home-made, Miss Emma Bryan, city
 Second, Mrs. J. B. Powers, city.

CLASS LVI.

Drawing, original, Lelia Ingraham, city.
 Second, Lelia Ingraham, city
 Drawing, copy, Lelia Ingraham, city
 Crayon drawings, display, Lelia Ingraham, city.
 Crayon drawings, specimen, May Ingraham, city
 Second, Lelia Ingraham, city
 Conventionalized design, Lelia Ingraham, city
 Second, Lelia Ingraham, city
 Modeling in clay, Fairy Trumbal, city
 Needlework, Jennie Combs, Frankfort

COMMERCIAL FERTILIZERS.

H. A. HUSTON, STATE CHEMIST.

During the past year very many questions have come to me in regard to Commercial Fertilizers. Many of these questions have been answered in previous bulletins. But as the number of farmers interested in the matter seems to be on the increase, I think it may be profitable to again make a brief statement of the more important facts connected with fertilizers. It is to be understood at the outset that while this bulletin deals of necessity with *commercial* fertilizers for the most part, the real end in view is not to press the claims of commercial fertilizers, but to urge that a reasonable method of treating land be followed, to the end that good crops may be procured without diminishing the fertility of the soil. Many farms, especially in the southern part of the State, are already showing a marked decrease in fertility, and in consequence this part of the State is the chief market for commercial fertilizers. The use of these goods is on the increase, as shown by the records of the State Chemist. During the year 1888 the sales were estimated at 10,000 tons, during 1889 at 19,000 tons, and during 1890 at 29,000 tons. The number of brands offered and the number of manufacturers doing business in the State is increasing even more rapidly.

THE VALUABLE INGREDIENTS OF FERTILIZERS.

While the number of chemical elements that are found in plants may be stated to be 15 or 16, the only ones that require our attention at present are *Nitrogen*, *Phosphoric Acid* and *Potash*. The others are either present in sufficient quantity in the soil, or are present in fertilizers and manures combined with the valuable ingredients. Of the three important ingredients the most costly is

NITROGEN.

While nearly four-fifths of the atmosphere consists of free nitrogen, very few plants can make use of this form of nitrogen. Hence, we look to compounds containing nitrogen for the principal supply. A small amount of combined nitrogen exists in the atmosphere, and is brought to the land by rains. But the total amount of this during a year will rarely exceed one-tenth of the nitrogen removed by an average crop.

The more important sources of nitrogen are:

Nitrate of soda,
Sulphate of ammonia,
Guanos,

Organic nitrogen in bones, tankage, dried blood, slaughter-house waste, fish scrap, cotton seed meal, seed pomace, and other vegetable and animal refuse.

The Sulphate of Ammonia is the most expensive form, and cotton seed probably the cheapest form of nitrogen. Nitrogen is frequently quoted in the form of *ammonia*, or as equivalent to ammonia. *Ammonia* is a compound of three volumes of hydrogen and one volume of nitrogen. By weight 14 parts of nitrogen are equivalent to 17 parts of ammonia. Nitrogen is also contained in hair, horns, hoofs and similar material; but these forms are so insoluble that they become very slowly available for plant food.

Recent experiments seem to show that certain plants, like clover, peas and related plants, have, under certain conditions, the power to take up the free nitrogen of the air and transform it into nitrogen in organic compounds. This is probably a partial explanation, at least, of the marked benefit often following the ploughing under of a heavy growth of clover. The importance of this power of these plants can hardly be over-estimated, since it opens the way for the cheapest possible supply of nitrogen. The nitrogen which is present in soils is not all available for plants, and as it becomes available through chemical actions taking place in the soil, it is in such a form that there is danger of its being washed away with the drainage. Hence it happens that many of our lands become exhausted in nitrogen quite rapidly. These lands are frequently hill lands, and on these lands green manuring with clover has often proved of the utmost benefit.

Muck or peat contains considerable nitrogen. The percentage of nitrogen varies from four-tenths of one per cent. to three per cent. Where beds of peat or muck are near at hand they constitute a most valuable source of this expensive plant food. The value of the nitrogen in a ton of air dry peat of good quality would be from \$7 to \$10. The quality of muck is improved by composting, which renders its nitrogen more readily available.

PHOSPHORIC ACID.

This is a compound of phosphorus and oxygen. It is indispensable to plant life. It forms the principal valuable ingredient of most commercial fertilizers, and in some cases is the sole ingredient of value. There are *three forms* of phosphoric acid which claim our attention:

Soluble phosphoric acid, by which is meant those compounds of it which are dissolved by pure cold water;

Reverted phosphoric acid, sometimes called *citrate soluble phosphoric acid*, by which was originally meant a form of phosphoric acid which had been soluble in water, but which had subsequently become insoluble in pure water owing to changes taking place in the mixture; this form is still soluble in the soil waters, and hence is considered as available for plant food. This form is also soluble in certain solutions, as ammonium citrate, and hence the term, reverted phosphoric acid, now practically means all the phosphoric acid that can be dissolved by the standard solution of ammonium citrate according to the conditions agreed upon by agricultural chemists. Most authorities consider that soluble and reverted phosphoric

acid are of practically the same value for plant food. When soluble phosphoric acid is mixed with the soil, it very soon assumes the reverted form; that is, becomes fixed by the soil and insoluble in pure water, but soluble in the soil waters, especially when in contact with the roots of plants, and hence is available for plant food, although in little danger of being washed out by rains;

Insoluble phosphoric acid. This form is practically insoluble in water or ammonium citrate, and may be considered as not available for plant food. Still a distinction ought to be made between the insoluble phosphoric acid derived from rock phosphates, which would become available very slowly, and that derived from bone, which becomes available much more rapidly on account of the speedy decomposition of the bone. This decomposition is much more rapid if the bone be finely ground.

Available phosphoric acid. By this is meant the sum of the water soluble and the reverted or citrate soluble; it is the amount that is supposed to be at once available for plant food.

SOURCES OF PHOSPHORIC ACID.

The principal sources of phosphoric acid :

Bones, both raw and steamed,

Bone black refuse or the waste that occurs when the charred bones are sifted,

Spent bone black,

Tankage,

Rock phosphates, including both the common rock phosphate in which the phosphoric acid is combined with lime, and forms that have come on the market more recently, in which the phosphoric acid is combined with alumina.

All these forms of phosphoric acid, excepting the rock phosphates, are quite readily available to plants, provided the material is well ground. In case of the rock phosphates the material is generally treated with sulphuric acid, by which the phosphoric acid is rendered wholly or in part soluble in water, and hence available at once for plant food. Bones and bone black are also often similarly treated. Material containing phosphoric acid that has been rendered soluble by treatment with sulphuric acid is known as *Superphosphate*. In practice it is customary to apply the term superphosphate to rock phosphate, and the terms dissolved bone or dissolved bone black and acidulated bone are applied to the material resulting from treating these materials with sulphuric acid.

Still this usage is not always followed, and terms like raw bone, superphosphate, etc., are frequently met with. Please note here that the trade name of a commercial fertilizer may not truly indicate the real source of the phosphoric acid. Thus there are undoubtedly brands selling under name of 'dissolved bone' that are wholly derived from rock. In these cases, so far as the *available phosphoric acid* is concerned, it makes little difference, as all available phosphoric acid, from whatever source, may be considered of equal value. In regard to the insoluble phosphoric

acid there is undoubtedly a difference in value; but in the dissolved rock so much sulphuric acid is generally used that very little phosphoric acid remains insoluble, and the question becomes one of morals rather than of trade values.

POTASH.

This is a compound of potassium and oxygen, and is essential to plant growth. It is formed in the soil by decomposition of minerals of the feldspar group, containing from 10 to 16 per cent. of potash. These minerals decompose slowly, thus yielding a supply of potash. But in many soils these minerals are nearly absent, or do not decompose rapidly enough to supply the necessary potash for the crops.

The potash in commercial fertilizers is combined to form either the *Chloride of Potash*, or, as it is often called, the *Muriate of Potash*, or the *Sulphate of Potash*. More rarely wood ashes are used in which the potash is combined in the form of the *Carbonate of Potash*, one of the most valuable forms of potash for plant food. More actual potash can be bought for a given sum in the form of the *Chloride* than in the form of the *Sulphate*, and hence this is the form frequently found in fertilizers. But while this form is suitable for most crops, there are certain crops that field experiments have shown are injured by the chlorine present in the chloride or muriate, and on these the sulphate of potash or wood ashes should be used. Tobacco raised on soil to which chlorides have been offered will not burn readily, and potatoes raised on such soil are waxy rather than mealy. The objections to the use of chlorides for these crops would exclude the use of ground bones which had been salted to preserve them, since common salt contains a large amount of chlorine.

SOURCES OF POTASH.

The principal source of potash compounds is the deposit of potash salts at Stassfurt, Germany. Here the potash occurs in great beds as the chloride and the sulphate, or as mixtures of these with compounds of sodium and magnesium. The potash compounds are refined and put on the market as the muriate or chloride of potash, and as the sulphate of potash. The commonest of the Stassfurt minerals, called "Kainit," has recently been put on the market at a somewhat reduced rate. It is a complex mixture of chloride and sulphates of potassium, sodium and magnesium. It is one of the cheaper forms of potash. Nearly one-fourth its weight is chlorine, and hence it should not be applied to those crops that are injured by chlorine. It contains about 12 per cent. of actual potash.

Wood ashes are a most desirable form of potash. Ashes of good quality contain about 8 per cent. of actual potash, and are worth about 25 cents per bushel for fertilizing purposes. In addition to the benefit derived from the potash and small amount of phosphoric acid in ashes, there is an advantage derived by the land, owing to the fact that the ashes are alkaline, and set up changes in the soil that render its plant food more available.

Ashes of cotton seed hulls also contain a large amount of potash, and are one of the cheapest and best forms of potash. The *ashes of corncobs* are of similar character, and contain nearly 40 per cent. of actual potash.

Leached ashes have comparatively little fertilizing value. *Tobacco stems* contain considerable quantity of both potash and nitrogen in the best form, and are highly esteemed for fertilizing purposes.

It may be well to call attention to the form of statement sometimes used in stating the composition of a fertilizer. Thus a form similar to the following is sometimes met with :

Phosphoric acid, equivalent to bone phosphate . . .	40 per cent.
Ammonia, equivalent to sulphate	10 " "
Potash, equivalent to sulphate	6 " "

Such statements are misleading for two reasons : First, the large numbers give an idea that the fertilizer must contain a large amount of plant food. Second, one not entirely familiar with these matters is led to think that "bone phosphate" is actually present, and so for sulphate of ammonia and sulphate of potash, all most desirable forms of these compounds. Now on careful examination the statement is found to mean nothing of the kind. The real meaning is that there is present enough actual potash to form 6 per cent. of the fertilizer if this potash were combined with enough sulphuric acid to form the sulphate of potash. As a matter of fact the potash may be and often is present in the form of the muriate in such cases. The same kind of statement may apply to the ammonia and phosphoric acid. There may even be no real ammonia present, but simply enough nitrogen in cheaper forms to make 10 per cent. when combined with enough hydrogen, sulphur and oxygen to form ammonic sulphate. In the same way the phosphoric acid present may have been derived from rock, and there may be enough present when combined with the highest amount of lime possible in a phosphate to make 40 per cent.

Another method of stating the same thing, and the method followed by those who wish to represent the facts, would be :

Phosphoric acid	18.3 per cent.
Nitrogen	2.1 " "
Potash	3.2 " "

Or if the nitrogen is expressed in terms of ammonia, as is customary in many cases, the per cent. would be 2.6. These figures are not as large as the first set, but they have the advantage of stating the facts without misleading.

AMOUNT OF PLANT FOOD CONTAINED IN THE FERTILIZERS SOLD DURING THE PAST YEAR.

As stated above, about 29,000 tons of commercial fertilizers were sold in the State during 1890. This contained 413 tons of actual potash valued at \$49,600, 837 tons of ammonia valued at \$301,120, 4,628 tons of phosphoric acid, of which 2,537 tons were "available" and valued at \$405,920, and 2,091 insoluble and valued at \$125,460; making a total value of \$882,100. Included in this are 9,550 tons of bones, raw and steamed, the actual selling price of which must have

been not less than \$300,000. Now these seem large sums of money to be expended for commercial fertilizers in one year. *But the money actually expended for commercial fertilizers in Indiana during 1890 was less than 3 per cent. of the money value of the nitrogen, phosphoric acid and potash that were exported from the State in corn and wheat alone during the same year.*

The actual amount of potash sold was just about equal to what is hauled to Indiana paper mills in straw, and less than 1-400 of what is removed in grain (straw not included). The amount of nitrogen sold was less than 1-100 of that removed in grain crops, and the amount of total phosphoric acid less than one-fourth of that removed in grain crops. The fertilizing material removed by a bushel of wheat is worth at least 30 cents, by a bushel of shelled corn 24 cents, and by a bushel of oats 20 cents. On this basis the actual money value of the fertilizing material exported annually from the State in these three crops alone would exceed \$30,000,000.

The inference from the above statements is that the food plant in our land must be decreasing. This must finally result in a decreased productiveness. Improved tillage may for a time mask this reduction of fertility, but it is only a question of time when the productiveness will be reduced unless some means are taken to supply plant food.

It is true that it is not possible to entirely remove the plant food from a soil by crops. But it is also true that one or more of the necessary elements of plant food may be so reduced that the land will no longer yield *paying* crops. Many of our hill lands have already reached this condition.

Now, how are we to find out the condition of any given land and its needs? It was formerly thought that a chemical analysis of the soil would answer the question. It is true that an analysis of the soil will show the *total amount* of plant food present, but it can give very little information in regard to how much of this plant food is now in such a condition as to be at once available to crops, and no information of the rate at which the remainder will become available. A more reliable answer may be found by a question put to the soil itself in the form of a

FIELD EXPERIMENT ON THE LAND.

To make such an experiment a piece of land should be selected which is as nearly uniform throughout as possible, and all parts of which have had the same treatment in previous years. A convenient sized plat for the experiment is $\frac{1}{8}$ acre, and 10 or more plats should be used. There should be a margin equal to, say, one width of drill all around the space devoted to plats, and between the plats should be a space equal to the width of the drill. If the land is at all uneven, or slopes, the plats should run in such a direction that all the plats are as nearly alike as possible. On sloping ground the plats should run up and down and not across the slope. Plats should be long and narrow, rather than short and wide. A plat 272 feet 3 inches long and 16 feet wide is of suitable form and contains $\frac{1}{8}$ acre. It is convenient, since it requires 3 widths of the drill; the space between the plats is 5 feet 4 inches wide, or one width of the drill. For corn make plats 297 feet long, and 14 feet 8 inches wide, with 7 feet 4 inches between hills, provides for 4 rows in the plat and 2 rows between.

The following sketch shows the arrangement; the plats should be marked with stakes firmly driven at each corner and a careful record of each plat kept. Spaces are left between the plats in order that the fertilizing material on one plat may not encroach on the next plat and so give incorrect results.

I	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Suppose the crop is to be wheat, and we decide to use twice as much fertilizer or plant food of various kinds as a 30 bushel crop will remove. Of course this would not be used on a large scale; the purpose here is to make sure that there may be within reach of the plants experimented upon plenty of each kind of plant food, even if the roots do not extend over the whole ground, and also to provide enough so that the plant may take it up rapidly during periods especially favorable to growth.

Apply to plat No. 1	...	No fertilizer.
" " " " 2	{ Sulphate of ammonia . . . 45 lbs. Phosphate . . . 25 lbs. Muriate of potash . . . 11 lbs.	
" " " " 3	Heavy dressing of barnyard manure.	
" " " " 4	{ Phosphate . . . 25 lbs. Sulphate of ammonia . . . 45 lbs.	
" " " " 5	{ Phosphate . . . 25 lbs. Muriate of potash . . . 11 lbs.	
" " " " 6	{ Muriate of potash . . . 11 lbs. Sulphate of ammonia . . . 45 lbs.	
" " " " 7	...	No fertilizer.
" " " " 8	...	Sulphate of ammonia, 45 lbs.
" " " " 9	...	Phosphate, 25 lbs.
" " " " 10	...	Muriate of potash, 11 lbs.

The phosphate used may be either a plain superphosphate containing 13 to 16 per cent. available phosphoric acid, or a bone black containing the same amount.

The bone black generally contains about 1 per cent. of nitrogen, but this would make but little practical difference in the result, since the amount of phosphate used is small.

Of course the plats may be more numerous if desired, and special things used on the other plats, or the trials already described may be duplicated. Should it seem desirable to reduce the number of plats I should take off No. 10 and then No. 9, and so on down in order to No. 6. I have included in Nos. 8, 9 and 10 the tests with single plant foods because it is customary to do so, although I doubt whether the result of an experiment when a single plant food is in great excess of the others is to be depended upon.

Of course it is desirable that each plat should be harvested by itself, and the weight of both straw and grain on each plat recorded. Should the amount of work at harvest time prevent this, still much valuable information will be gained if careful notes are taken of the condition of the plats from time to time, and good judgment be exercised in estimating the crop on each, especial care being taken that this judgment is not influenced by an opinion formed when the plant is at an early stage of its growth.

The method of proceeding with other crops is the same as that given, but the quantities of fertilizing material vary for the different crops. I give below the amount to be used for corn, oats and barley :

CORN.

Plat No.	1	No fertilizer.
" "	2	{ Sulphate of ammonia . . . 108 lbs. Phosphate 44 lbs. Muriate of potash 24 lbs.
" "	3	Barnyard manure.
" "	4	{ Phosphate 44 lbs. Sulphate of ammonia . . . 108 lbs.
" "	5	{ Phosphate 44 lbs. Muriate of potash 24 lbs.
" "	6	{ Sulphate of ammonia . . . 108 lbs. Muriate of potash 24 lbs.
" "	7	No fertilizer.
" "	8	Sulphate of ammonia, 108 lbs.
" "	9	Phosphate, 44 lbs.
" "	10	Muriate of potash, 24 lbs.

OATS.

Plat No.	1	No fertilizer.
" "	2	{ Sulphate of ammonia . . . 50 lbs. Phosphate 21 lbs. Muriate of potash 18 lbs.
" "	3	Barnyard manure.
" "	4	{ Phosphate 21 lbs. Sulphate of ammonia . . . 50 lbs.

Plat No.	5	{	Phosphate	21 lbs.
			Muriate of potash	18 lbs.
" "	6	{	Sulphate of ammonia	50 lbs.
			Muriate of potash	18 lbs.
" "	7		No fertilizer.	
" "	8		Sulphate of ammonia, 50 lbs.	
" "	9		Phosphate, 21 lbs.	
" "	10		Muriate of potash, 18 lbs.	

BARLEY.

Plat No.	1		No fertilizer.	
" "	2	{	Sulphate of ammonia	58 lbs.
			Phosphate	26 lbs.
			Muriate of potash	16 lbs.
" "	3		Barnyard manure.	
" "	4	{	Phosphate	26 lbs.
			Sulphate of ammonia	58 lbs.
" "	5	{	Phosphate	26 lbs.
			Muriate of potash	16 lbs.
" "	6	{	Muriate of potash	16 lbs.
			Sulphate of ammonia	58 lbs.
" "	7		No fertilizer.	
" "	8		Sulphate of ammonia, 58 lbs.	
" "	9		Phosphate, 26 lbs.	
" "	10		Muriate of potash, 16 lbs.	

The size of the plats used is a matter of no great importance. I have chosen $\frac{1}{10}$ acre because it is a size found convenient, and it is large enough to admit of the usual farming operations, and the results ought to be comparable with ordinary field work. If smaller plats are desired, the fertilizing material can be proportionately reduced. Of course an experiment of this sort is liable to the same dangers that may affect any field crop. A serious drought may prevent the plant from using the food furnished it, or other misfortunes may come. In estimating the effects of these the farmer must use that common sense which no working directions can supply. The most careful experimenters repeat their experiments for several seasons in order to avoid results that are influenced by some peculiarity of any particular season.

If you try this experiment you will be sure to find out two things: That it requires some labor and thought, and that it costs some money. If you are not willing to work and think about your work, of course you will not undertake such an experiment. The cost is far less than it will cost you to buy fertilizers without knowing whether you are buying what your land needs, and all that it needs, or whether you are paying out money for something that the land does not need at all. It may happen that by paying for this plant food your attention may be more directly called to the value of the plant food you are annually taking from your land, and lead you to at least utilize all the manurial material of the farm in replacing it.

It should be clearly understood that the above plan is not a plan to be applied to a whole farm. The cost of the material will doubtless be greater than the value of the increase of crop on the fertilized plats. The plan is one for finding out what the land needs. In order to do this the plant food must be procured in such a form that each element can be handled by itself. To obtain these elements in a highly concentrated and available form is an expensive operation. The question of *what is needed* must be solved before we can decide how to get it. Let us suppose that as the result of an experiment the conclusion was reached that the land was in need of nitrogen, but showed little if any gain from the use of phosphoric acid or potash. We would then look about for the cheapest possible source of nitrogen. It is probable that this would be found to be a heavy growth of clover turned under. For immediate use, cotton seed or cotton seed meal would be the cheapest form. If potash was found to be the thing needed, then at present rates "Kainit" would be the cheapest form, unless some unusually good bargain could be found in a lot of wood ashes or tobacco stems of good quality. Should phosphates be needed, there are many sources to draw from, such as bone (400 to 500 lbs. of phosphoric acid and about 80 lbs. of nitrogen per ton), steamed bone (500 to 600 lbs. of phosphoric acid and 40 lbs. of nitrogen per ton), plain superphosphates (240 to 350 lbs. phosphoric acid per ton), or possibly the phosphate of aluminum (950 to 1,000 lbs. phosphoric acid per ton).

The market price of fertilizing material varies from time to time, and the prices at any given time must be taken into consideration in deciding what form of the needed material will be cheapest. Among the commercial fertilizers on the market all sorts of combinations occur, and it may be that one of these may be found to be as cheap a source as any. A farmer knowing the price of any given fertilizer, and also the price of the material that he needs, can decide for himself whether it will be more economical for him to buy the mixed goods or to buy the material and mix them himself.

Many eminent eastern authorities on the subject of fertilizers advise farmers to mix their own goods. This includes the treatment of the phosphatic material with sulphuric acid in many cases. The acid is quite troublesome to handle, and its freight rate is high. If bone is used it may happen that the final mixture is neither dry nor fine enough to handle with a drill. I am inclined to believe that most western farmers would not care to undertake this operation, but would prefer to buy the phosphoric acid in the form of dissolved bone, bone black, or rock, or to use the fine bone without treatment with acid. The mixing of the other material containing nitrogen and potash is not a difficult matter. Should any farmer care to make the experiment of treating phosphate with sulphuric acid, I shall be glad to furnish information in regard to it. According to Scotch estimates, 40 per cent. of the bone meal is available or used by the first crop, 80 per cent. of the dissolved bone is used by the first crop. The remainder is used by the subsequent crops, but at the end of four years all the phosphatic material is considered to be used up. The eminent son of Indiana, now Chief Chemist of the United States Department of Agriculture, believes that the phosphoric acid as it exists in bone is in the most desirable form for plant food, and that there is no real agricultural gain made by treating the bone with sulphuric acid.

It was at one time thought that if as much nitrogen, phosphoric acid and potash were applied to the land as the crop removed, that an ideal system of fertilization would be had. This plan has gone to join the soil analysis fiction.

Dr. Paul Wagner has worked out a system by which excessive amounts of phosphoric acid and potash are applied to the soil for several years, and in the meantime from only $1\frac{1}{2}$ to 2 times as much nitrogen as the crop requires. The object is to bring the land to a high degree of richness in phosphates and potash, which are not readily washed out of the land, and to avoid the danger of loss of nitrogen, which in the form of nitrates is not retained by the soil. After this method has been followed for a few years only nitrogen need be supplied. I think some of our market gardeners have already brought portions of their land into this condition. The system is doubtless much better adapted for the small holding and high farming of Europe and portions of New England than for the style of extensive farming followed here. Most of the land in this State has not reached a condition in which this method would seem to be desirable. For corn it would require an outlay of about \$70 per acre, and for wheat of about one-half this amount. Still it is interesting to note that in using bone we are really following this system so far as relates to phosphates. For a dressing of 300 lbs. per acre of bone meal supplies from 60 to 70 lbs. of phosphoric acid, or ten times as much as is removed by an average wheat crop, and about 12 lbs. of nitrogen, or a little more than the average crop removes. All of our crops remove more potash than phosphoric acid, although the potash in most fertilizers is much less than the phosphoric acid.

It can not be too strongly urged upon farmers that they should utilize to the best advantage all material of the farm which has a manurial value. All manure and ashes ought to be preserved, and any muck beds made to contribute to the fertility of the higher land. In a locality where there is not a good market for straw, some arrangement ought to be made for returning so much of this as is not used for feed to the soil. It has a manurial value of at least \$2 per ton. If an ensilage cutter were to take the place of the straw stacker, the cut straw could be distributed on the land at small cost, and being cut in short lengths would not interfere with ploughing.

EXPLANATION OF THE TABLES.

Table one contains analyses of goods analyzed since July, 1890, and of all goods analyzed previous to 1890, but sold since January, 1890. Table two contains analysis of goods received since January, 1891.

It may be well to state here that the names of commercial fertilizers are not always a sure guide to their composition or quality. A poor grade of fertilizer may have a very big name. The State Chemist is not responsible for these names. The manufacturer makes an affidavit that he will sell certain goods under such a name, and the name thus becomes a part of the official record. Take for example the case of raw bone meal. A good quality of bone meal ought to contain at least 20 per cent. of phosphoric acid and $4\frac{1}{2}$ per cent. of ammonia. Many samples run much higher than this. If the bone has been steamed, it should contain not less

than 25 per cent. of phosphoric acid and 2 per cent. of ammonia. If the tag of the State Chemist shows that the goods fall below these standards to any marked degree, it means that there is something beside bone present, and the word "pure," and such terms, are incorrectly applied. These standards do not apply to "dissolved bone." Buyers should depend on the State Chemist's analysis, as shown on the tag, and not on high sounding names.

The esteem in which bone phosphates are held has led to the use of the name "bone" being applied to phosphates and superphosphates that were, perhaps, bone in the remote past, but which, during recent geological times, have existed in the form of rock phosphates. The question is sometimes asked whether *all the available phosphoric acid* in fertilizers containing very little insoluble phosphoric acid was derived from bone. I do not believe that any reliable method exists for finding this out, nor do I consider it a matter of much importance in regard to the available phosphoric acid. It is not difficult to distinguish the insoluble from the two sources, but as the amount of insoluble is small in such cases, the importance of the matter is small. It may be well to note that a genuine dissolved bone will contain at least 2 per cent. of ammonia, and not less than 1 per cent., even if a large amount of inert material has been added as a dryer. Even dissolved bone black generally contains 1 per cent. of ammonia.

Most manufacturers print "guaranteed analyses" on their sacks. Some of these are in reasonable form, and some are most absurd and liable to mislead. The term "available phosphoric acid" frequently appears in these. The available phosphoric acid is the sum of the soluble and reverted phosphoric acid on the tag. Many of these "guaranteed analyses" have too wide limits. Thus we sometimes see them reading, "available phosphoric acid 8 to 12 per cent." Now this merely means that the maker states that there is 8 per cent. or more present, and in estimating values from such statement, figure on the lower number. In all cases it is better to make the calculations from the official tag, as that shows the result of an actual analysis, backed up by an affidavit. If there are no official tags on the goods, don't buy them unless you want to be cheated or to help the dealer commit a crime.

The tables contain an "*estimated value per ton.*" It is important to note what is intended by this. No attempt is made to state the *agricultural* value of the fertilizer or the return which a farmer may expect from a given quantity of any brand. This agricultural value would depend on many varying conditions, such as the crop to be raised, the composition and condition of the soil, the time and manner of applying the fertilizer, the amount of rainfall and sunshine, the temperature of the season, the drainage and other conditions.

The "estimated value per ton" is intended to mean the *commercial* value; that is, the sum for which a ton of the sample could be made and put upon the market. The figures are only approximate, and are probably rather above the selling price of the goods. In computing these valuations, the following values were given to the various ingredients:

Soluble phosphoric acid	8c. per pound.
Reverted " "	8c. " "
Insoluble " "	3c. " "
Ammonia.	18c. " "
Potassium oxide.	6c. " "

These valuations are useful to the farmer in deciding between different samples of goods offered to him.

In order to find the estimated value per ton, the following simple rules may be observed:

Multiply \$1.60 by the per cent. of soluble phosphoric acid.						
"	1.60	"	"	reverted	"	"
"	60	"	"	insoluble	"	"
"	3.60	"	"	ammonia.		
"	1.20	"	"	potash.		

Add together the numbers so obtained, and the sum is the estimated commercial value of a ton of the goods. For example, the tag shows that the fertilizers contain:

Soluble phosphoric acid	2.70	per cent.
Reverted " "	5.37	"
Insoluble " "	2.66	"
Ammonia.	3.76	"
Potash	2.45	"
<hr/>		
\$1.60x2.70	\$4 32	
1.60x5.37	8.59	
.60x2.66	1.60	
3.60x3.76	13.53	
1.20x2.46	2.95	

Estimated value per ton . . \$30.99

In purchasing fertilizers the farmer should keep in mind the crop to be raised and the kind of land on which it is to be grown. If the crop is one requiring a large amount of potash, as the tobacco crop, then goods should be selected containing a large amount of this ingredient. If his land contained a fair amount of phosphoric acid, little or no benefit could be expected from the application of a fertilizer containing much phosphoric acid and a small amount of ammonia and potash. The investigation of the needs of a given soil can only be made by experiment, and the directions for such experiments have been given above.

Farmers are advised to buy only such goods as bear the State Chemist's analysis. Persons selling goods that are not so labeled are committing an offense against the laws of the State. The label indicates that the manufacturer has made an affidavit that the goods are as represented.

Experience in other States has shown that the reputable manufacturers and dealers are willing to conform to the laws, and that when goods are offered for sale without the official or legal label they are of an inferior quality. It is generally those who offer adulterated goods who do not wish the quality of their goods known.

TABLE I.

This Table is a Continuation of Table II of Last Year's Report. It Contains Analyses of all Fertilizers Analyzed between July and December, 1890, and of all Analyzed in Previous Years, but Sold Since January, 1890.

Number.	NAME OF FERTILIZER.	MANUFACTURER.	Per Cent. Soluble Phosphate.	Per Cent. Reverted Phosphate.	Per Cent. Insoluble Phosphate.	Per Cent. Total Phosphate.	Per Cent of Ammonia.	Per Cent. of Potash.	Estimated Value Per Ton.	Number.
455	Globe Wheat Grower	Globe Fertilizer Co., Louisville, Ky . . .	3.43	5.72	5.00	14.15	2.45	1.88	\$23.72	455
456	Globe Bone Dust	Globe Fertilizer Co., Louisville, Ky . . .	3.72	5.34	4.08	13.14	1.86	0.00	23.03	456
457	Progress Phosphate	Globe Fertilizer Co., Louisville, Ky . . .	3.75	5.48	4.02	13.25	1.86	1.87	26.11	457
458	Golden Harvest Bone Meal	Globe Fertilizer Co., Louisville, Ky . . .	1.88	5.50	8.54	16.45	3.21	0.70	29.23	458
459	Sweetstakes Phosphate	Loudenback Fertilizer Co., Urbana, O . .	4.34	3.71	1.16	9.71	1.91	1.68	23.38	459
460	Valley City Wheat Grower	Yorks	2.65	6.14	5.19	13.93	3.55	0.91	31.04	460
461	Bowker's Wheat Grower	"	10.17	1.80	3.71	15.68	0.12	0.00	21.80	461
462	Increscent Brand Pure Raw Bone Meal.	"	0.10	7.29	15.33	22.62	4.56	0.00	37.27	462
463	Zell's Calvert Manure	"	9.19	2.01	1.42	12.62	1.00	1.43	25.09	463
464	Zell's Electric Phosphate	"	9.08	2.26	2.06	13.80	0.06	2.32	22.37	464
465	Zell's Dissolved Bone Phosphate . . .	ore, Md.	13.27	2.01	0.00	15.28	0.06	0.00	24.66	465
466	Conkling's Bone Fertilizer	non, Ind	2.26	6.59	12.04	10.89	2.14	1.27	29.61	466
467	Fertilizer	ak Fer st, Ind. . .	0.00	1.37	3.91	5.28	1.75	0.33	11.22	467
468	Tripp Brothers' Bone Phosphate . . .	Co.	1.93	5.95	4.44	12.32	3.88	2.10	32.06	468
469	Globe Wheat Fertilizer	Co., Louis	4.62	6.20	0.17	5.59	5.19	2.64	30.62	469
470	. . . . .	Cincinnati Desiccating Co	0.00	4.76	16.40	21.16	4.53	0.00	33.94	470
471	. . . . .	Cincinnati Desiccating Co	2.06	6.23	4.25	13.13	2.07	2.28	26.32	471
472	. . . . .	Cincinnati Desiccating Co	1.93	6.95	4.94	12.82	3.88	2.10	31.94	472
473	Round Bone Meal	Crocker Fert. and Chem. Co., Buffalo, N. Y	0.00	9.13	15.43	24.56	3.38	0.00	26.03	473
474	Ammoniated Corn and Wheat Phosphate	Crocker Fert. and Chem. Co., Buffalo, N. Y	6.23	1.81	3.24	11.33	2.61	2.29	27.10	474

* Owing to an error in shipping sample, No. 463 does not represent the Wheat Grower that will be offered by the Bowker Company. See No. 478.

TABLE I—Continued.

Number.	NAME OF FERTILIZER.	MANUFACTURER.	Per Cent. Solu- ble Phosphoric Acid.	Per Cent. Re- verted Phos- phoric Acid.	Per Cent. Insol- uble Phosphor- ic Acid.	Per Cent. Total Phosphoric Acid.	Per Cent. of Am- monia.	Per Cent. of Potash.	Estimated Val- ue Per Ton.	Number.
475	New Rival Ammoniated Superphosphate	Crocker Fert. and Chem. Co., Buffalo, N. Y.	5.27	2.12	4.84	12.23	2.19	2.06	25.08	475
476	Pure Ground Bone	E. Raub & Sons, Indianapolis.	0.00	13.00	11.41	24.44	2.98	0.00	38.38	476
477	Chicago Raw Bone Meal	N. W. Fertilizing Co., Chicago	0.00	8.01	14.26	22.27	4.32	0.00	36.92	477
478	Bowker's Wheat Grower	Bowker Fert. Co., Boston, Mass	7.74	2.26	6.32	16.32	0.14	1.17	21.70	478
479	Pure Ground Bone Meal	Crocker Fert. and Chem. Co., Buffalo, N. Y.	0.00	9.80	20.85	30.65	1.96	0.00	35.25	479
480	St. Louis Raw Bone Meal	P. B. Mathiason & Co., St. Louis, Mo.	0.00	6.83	11.67	18.50	5.58	0.00	38.01	480
481	World of Good Raw Bone Superphosphate	Thompson & Edwards Fert. Co., Chicago	4.64	5.70	4.45	14.79	3.00	3.29	33.96	481
482	Indiana Sure Growth Phosphate	Thompson & Edwards Fert. Co., Chicago	5.87	5.01	4.98	15.26	1.72	1.38	27.88	482
483	Chicago Bone Meal	Thompson & Edwards Fert. Co., Chicago	0.73	8.05	7.57	16.35	3.89	1.14	33.95	483
484	Pure Fine Ground Bone	Thompson & Edwards Fert. Co., Chicago	0.00	12.87	15.76	28.63	3.51	0.00	42.68	484
485	Coarse Raw Bone	Thompson & Edwards Fert. Co., Chicago	0.00	6.88	14.87	21.75	4.32	0.00	35.48	485
486	Bone Meal	L. Lippman, South Bend, Ind	0.00	10.51	9.13	19.64	6.03	0.00	44.00	486
487	Currie's Wheat Grower	Currie Fert. Co., Louisville, Ky	5.81	4.43	4.32	14.56	2.20	0.00	26.89	487
488	Reese's Excellence Guano	J. S. Reese & Co., Baltimore, Md.	3.40	7.53	2.74	13.87	2.08	0.00	26.61	488
489	Reese's Challenge Crop Grower	J. S. Reese & Co., Baltimore, Md.	3.47	8.72	2.78	14.97	0.82	1.95	26.46	489
490	Crown Bone Phosphate and Potash	J. S. Reese & Co., Baltimore, Md.	9.20	3.88	3.68	16.76	0.08	1.65	25.40	490
491	Reese's Superphosphate of Lime	J. S. Reese & Co., Baltimore, Md.	5.22	8.66	3.17	17.05	0.13	0.00	24.57	491
492	Reese's A 1 Guano	J. S. Reese & Co., Baltimore, Md.	0.92	7.57	3.84	12.33	2.18	1.37	25.37	492
493	Ammoniated Bone	E. Raub & Sons, Indianapolis	0.00	7.27	5.83	13.10	10.00	0.19	51.36	493
494	Fine Raw Bone	Wm. Smith, Jr., Columbus, Ind	0.00	8.37	14.76	23.13	4.72	0.00	39.24	494
495	Soft Bone	Wm. Smith, Jr., Columbus, Ind	0.00	11.90	9.59	21.49	4.95	0.00	42.61	495
496	Roland Ammoniated Bone Phosphate	J. A. Street, Indianapolis.	4.77	4.74	2.39	11.90	1.83	2.01	25.65	496
497	Crocker's Wheat and Corn Phosphate	Crocker Fert. and Chem. Co., Buffalo, N. Y.	5.59	3.71	3.75	13.05	3.11	1.98	30.70	497
498	Wheat Phosphate	Milsom Rend. and Fert. Co., E. Buffalo, N. Y.	9.49	0.68	1.34	11.51	2.86	2.71	30.62	498
499	Champion Bone Meal	S. W. Evans, Otisco, Ind	0.00	11.51	11.54	23.08	4.58	0.00	41.88	499
500	G. E. Vegetable, Vine and Tobacco Fert.	Great Eastern Fert. Co., Rutland, Vt.	4.72	2.55	3.42	10.69	3.28	2.70	28.73	500
501	G. E. General Wheat Special	Great Eastern Fert. Co., Rutland, Vt.	5.81	1.57	3.29	10.67	2.72	2.37	26.41	501
502	G. E. General Sol. Bone and Potash	Great Eastern Fert. Co., Rutland, Vt.	7.54	4.09	2.70	14.33	0.00	2.61	23.36	502
503	G. E. Pure Ground Bone	Great Eastern Fert. Co., Rutland, Vt.	0.00	4.96	17.99	22.95	5.90	0.00	39.97	503
116	Bone Dust	Jacob Heck, Cannelton, Ind	0.00	3.76	12.42	16.18	3.83	0.00	27.25	116

102	.....	A. B. Mayer & Son, St. Louis, Mo.	21.71	24.83	4.90	0.00	34.85	102
205	.....	E. Raub & Sons, Indianapolis, Ind	14.14	21.91	4.82	0.00	38.26	205
290	.....	Cincinnati, Ohio, Desiccating Co.	7.55	20.26	5.16	0.00	43.51	290
242	.....	E. Raub & Sons, Indianapolis, Ind	17.16	26.69	5.55	0.00	38.61	242
247	.....	E. Raub & Sons, Indianapolis, Ind	5.52	8.37	3.96	0.46	22.98	247
261	Packing House Bone Meal	.....	17.18	24.67	4.36	0.00	37.98	261
262	Pure Ground Raw Bone	.....	16.81	25.15	3.65	0.00	36.56	262
273	Raw Bone Meal	Works.	18.12	21.96	4.44	0.00	33.64	273
275	Farmers' Favorite Phosphate	.....	5.09	14.16	3.75	1.11	32.39	275
281	Gileed Phosphate	.....	2.66	10.73	3.76	2.46	32.99	281
283	Ohio Valley Phosphate	.....	1.59	11.13	2.03	1.96	25.77	283
284	Sweepstakes Phosphate	.....	4.32	10.38	2.16	2.50	23.61	284
293	Corn Grower	.....	3.31	10.33	2.91	0.21	23.27	293
310	Corn and Wheat Grower	.....	1.06	12.43	3.13	1.44	30.62	310
311	Jarvis Drill Phosphate	.....	1.83	11.95	1.51	0.00	22.71	311
312	Desiccated Bone	.....	20.72	28.11	3.19	0.00	35.74	312
317	Lister's U. S. Phosphate	N. J.	2.29	10.49	2.00	2.33	23.72	317
318	Valley City Bone Meal	orks.	3.18	11.45	2.79	0.33	29.06	318
329	One-half Raw Bone one-half Bone Phosphate	.....	8.07	23.62	3.47	0.36	34.99	329
330	Our Bone	.....	4.56	13.32	2.13	1.29	23.21	330
332	Black Cross Phosphate	Loudenback Fertilizing Co., Urbana, O.	1.85	8.60	0.42	2.97	14.00	332
340	Bowker's Ammoniated Dissolved Bone	Bowker Fertilizer Co., Boston, Mass.	1.84	8.31	1.91	1.81	25.85	340
341	Bowker's Fresh Ground Bone	Bowker Fertilizer Co., Boston, Mass.	10.78	19.61	8.66	0.60	39.24	341
342	Bowker's Bone and Potash, Square B'd.	Bowker Fertilizer Co., Boston, Mass.	2.38	13.13	2.14	1.34	28.26	342
343	Bowker's Pure Crop Bone Phosphate	Bowker Fertilizer Co., Boston, Mass.	1.15	12.42	1.33	1.62	23.54	343
344	Bowker's Superphosphate	.....	1.32	14.09	0.00	0.00	20.17	344
352	Square Bone	.....	5.31	15.94	2.69	0.00	30.36	352
359	Cyclone Reduced Pure Raw Bone Meal	o, N. Y.	4.27	22.96	5.35	0.00	36.91	359
375	Pure Bone Meal	o	5.66	16.61	1.46	4.17	28.87	375
381	Pure Ammoniated Dissolved Bone	o	5.43	11.91	2.37	3.92	29.90	381
393	Diamond Soluble Bone	ilmington, Del.	3.13	14.06	0.38	0.00	21.96	393
395	Reliance Dissolved Bone	ilmington, Del.	2.28	14.43	0.03	0.00	22.55	395
413	High Grade Dissolved Bone	ilmington, Del.	6.66	21.22	2.22	0.00	34.19	413
435	Pure	Dunn	6.46	16.41	5.36	0.00	39.48	435
439	Home	Mich	1.24	10.69	2.80	1.74	28.48	439
446	Pure	Geo.	6.73	17.30	4.35	0.00	36.61	446

TABLE II.

Fertilizers Analyzed Since January, 1891.

Number.	NAME OF FERTILIZER.	MANUFACTURER.	Per Cent. Solu- ble Phospho- ric Acid.	Per Cent. Re- verted Phos- phoric Acid.	Per Cent. Insol- uble Phosphor- ic Acid.	Per Cent. To- tal Phosphor- ic Acid.	Per Cent. of Ammonia.	Per Cent. of Potash.	Estimated Val- ue Per Ton.	Number.
504	Sweepstakes Phosphate	Union Co., Urbana, O	4.53	2.71	0.63	7.87	2.64	1.73	23.54	504
505	Black Cross Phosphate	Union Co., Urbana, O	1.66	3.87	0.61	6.14	3.32	1.37	22.80	505
506	Raw Bone Meal	Wm. St. Louis, Mo	0.00	7.90	13.15	21.06	4.28	0.00	33.93	506
507	Corn Fertilizer	St. Louis, Mo.	5.97	0.90	0.55	7.42	4.08	0.68	27.00	507
508	Packing House Bone Meal	Jos. S. Wilson, New Albany, Ind	0.00	9.16	16.66	25.82	4.17	0.00	39.66	508
509	Pure Ground Raw Bone	Jos. S. Wilson, New Albany, Ind	0.00	7.45	18.52	25.97	3.75	0.00	36.53	509
510	Blood and Bone	Jos. S. Wilson, New Albany, Ind	0.00	5.54	8.86	14.38	8.20	0.30	41.09	510
511	Challenge Corn Grower	N. W. Fertilizing Co., Chicago, Ill	2.92	6.52	4.27	13.71	3.15	1.58	30.90	511
512	National Bone Dust	N. W. Fertilizing Co., Chicago, Ill	2.47	6.92	4.75	14.14	2.69	1.82	30.51	512
513	Garden City Superphosphate	N. W. Fertilizing Co., Chicago, Ill	2.57	6.99	4.99	14.55	2.86	1.85	30.80	513
514	Ammoniated Dissolved Bone	N. W. Fertilizing Co., Chicago, Ill	2.74	6.41	4.62	13.77	3.11	1.59	30.45	514
515	Prairie Phosphate	N. W. Fertilizing Co., Chicago, Ill	1.85	7.37	6.86	16.08	1.94	1.07	26.77	515
516	No. 33 Phosphate	N. W. Fertilizing Co., Chicago, Ill	1.85	6.97	7.59	16.41	1.79	1.10	26.43	516
517	Ky-Ana Phosphate	N. W. Fertilizing Co., Chicago, Ill	1.97	6.30	8.26	16.55	2.01	1.09	26.54	517
518	Superphosphate and Raw Bone Mixture	N. W. Fertilizing Co., Chicago, Ill	2.65	3.51	12.03	18.19	3.80	0.96	31.90	518
519	Ralston's Bone Meal	N. W. Fertilizing Co., Chicago, Ill	0.00	3.50	15.02	18.52	3.62	0.00	27.34	519
520	Ground Raw Bone	N. W. Fertilizing Co., Chicago, Ill	0.00	2.58	15.99	18.55	3.62	0.00	26.71	520
521	Fine Raw Bone	N. W. Fertilizing Co., Chicago, Ill	0.00	4.10	18.96	23.06	4.69	0.00	34.33	521
522	Pure Ground Bone	N. W. Fertilizing Co., Chicago, Ill	0.00	8.04	15.52	27.56	2.93	0.00	36.08	522
523	Dissolved Bone Superphosphate	P. B. Mathiason Co., St. Louis, Mo	5.88	4.02	3.72	13.32	3.48	1.83	32.78	523

*Owing to an error in sending samples, Nos. 515 and 516 do not represent these goods. For later analyses see Nos. 542 and 543.

524	St. Louis Fertilizer	P. B. Mathiason & Co., St. Louis, Mo.	5.77	3.45	2.05	11.27	3.06	1.50	28.85	524
525	Crocker's Niagara Phosphate	Crocker Fer. and Chem. Co., Buffalo, N. Y.	11.81	1.87	0.05	13.23	0.00	0.00	21.11	525
526	Crocker's Wheat and Corn Phosphate	Crocker Fer. and Chem. Co., Buffalo, N. Y.	7.01	1.79	1.24	10.04	3.15	2.17	28.76	526
527	Crocker's New Rival Am. Superphosphate	Crocker Fer. and Chem. Co., Buffalo, N. Y.	5.72	2.38	3.25	11.35	2.51	2.36	26.77	527
528	Crocker's Am. Practical Superphosphate	Crocker Fer. and Chem. Co., Buffalo, N. Y.	4.85	1.82	2.52	9.19	1.51	1.56	19.42	528
529	Crocker's Pure Ground Bone	Crocker Fer. and Chem. Co., Buffalo, N. Y.	0.00	9.06	14.81	23.87	5.08	0.00	41.67	529
530	Progress Phosphate	Globe Fertilizer Co., Louisville, Ky.	4.54	3.50	3.67	12.01	1.93	3.08	26.29	530
531	Eagle Fertilizer	Globe Fertilizer Co., Louisville, Ky.	4.39	4.91	4.29	13.59	2.06	2.22	27.52	531
532	Globe Bone Dust	Globe Fertilizer Co., Louisville, Ky.	3.21	5.18	4.77	13.16	1.77	0.00	22.65	532
533	World of Good, P., T. and V. Grower	Thompson & Edwards Fer. Co., Chicago, Ill.	3.93	6.10	3.44	13.52	3.69	3.29	35.41	533
534	World of Good Raw Bone Corn Grower	Thompson & Edwards Fer. Co., Chicago, Ill.	0.00	8.67	7.96	16.63	3.21	3.02	33.81	534
535	Currie's Guano	Currie Fertilizer Co., Louisville, Ky.	7.15	2.15	0.86	10.6	1.13	2.83	22.86	535
536	Currie's Black Diamond Phosphate	Currie Fertilizer Co., Louisville, Ky.	7.19	1.74	0.43	9.36	0.35	1.07	17.08	536
537	Currie's Corn Grower	Currie Fertilizer Co., Louisville, Ky.	5.00	4.60	3.35	12.95	2.41	0.91	27.23	537
538	Currie's Dissolved Bone	Currie Fertilizer Co., Louisville, Ky.	6.78	2.74	0.83	10.35	1.20	2.82	23.89	538
539	Currie's Falls City Phosphate	Currie Fertilizer Co., Louisville, Ky.	4.50	4.45	3.56	11.51	2.01	0.93	24.80	539
540	Currie's Falls City Bone Meal	Currie Fertilizer Co., Louisville, Ky.	4.32	5.32	5.23	14.87	1.70	1.91	25.16	540
541	Ammoniated Ground Bone	John R. Buhner, Seymour, Ind.	0.00	7.72	14.10	21.82	4.09	0.24	25.81	541
542	Prairie Phosphate	N. W. Fertilizing Co., Chicago, Ill.	1.98	7.28	5.37	14.63	2.30	1.07	27.60	542
543	No. 26 Phosphate	N. W. Fertilizing Co., Chicago, Ill.	2.01	6.92	4.99	13.92	2.49	1.08	27.54	543
544	Pure Dissolved Bone with Potash	Walker, Stratman & Co., Pittsburgh, Pa.	6.98	2.15	3.06	12.09	1.93	2.31	25.99	544
545	Corn, Wheat and Potato Special	Walker, Stratman & Co., Pittsburgh, Pa.	2.46	3.95	2.23	8.64	1.27	3.42	20.26	545
546	Four fold	Walker, Stratman & Co., Pittsburgh, Pa.	2.02	4.25	2.69	8.96	1.36	1.08	17.83	546
547	Big Bonanza	Walker, Stratman & Co., Pittsburgh, Pa.	6.87	2.13	3.19	12.19	1.85	1.94	25.30	547
548	Butcher Ground Bone	Walker, Stratman & Co., Pittsburgh, Pa.	0.96	5.24	7.04	13.24	3.09	0.00	25.27	548
549	Bone and Meat	Walker, Stratman & Co., Pittsburgh, Pa.	0.00	2.43	6.83	9.26	5.27	0.00	26.96	549
550	Pure Raw Bone	Walker, Stratman & Co., Pittsburgh, Pa.	0.00	6.57	18.68	25.25	4.08	0.00	36.41	550
551	Helpmate Superphosphate	Walker, Stratman & Co., Pittsburgh, Pa.	9.10	1.93	2.16	13.19	0.00	0.00	18.95	551
552	Lister's U. S. Phosphate	Lister's Agr. Chem. Works, Newark, N. J.	7.05	1.00	0.28	8.33	2.38	3.20	25.44	552
553	Lister's Success	Lister's Agr. Chem. Works, Newark, N. J.	7.06	2.83	2.81	12.73	2.27	1.91	27.98	553
554	Lister's Ammoniated Dissolved Bone	Lister's Agr. Chem. Works, Newark, N. J.	6.56	3.11	3.31	12.98	2.74	1.63	29.28	554
555	Lister's Celebrated Ground Bone	Lister's Agr. Chem. Works, Newark, N. J.	0.38	4.26	9.65	14.29	4.27	0.00	28.58	555
556	Half-and-Half	J. S. Reese & Co., Baltimore, Md.	2.30	9.51	1.23	13.07	1.19	0.53	24.59	556
557	Potato and Corn Fertilizer	J. S. Reese & Co., Baltimore, Md.	4.44	3.73	0.82	8.99	4.11	8.39	38.42	557
558	Homestead Corn and Wheat Grower	Michigan Carbon Works, Detroit, Mich.	9.86	0.92	0.70	11.48	3.32	2.00	32.02	558

TABLE II—Continued.

Number.	NAME OF FERTILIZER.	MANUFACTURER.	Per Cent. Solu- ble Phosphoric Acid.	Per Cent. Re- verted Phos- phoric Acid.	Per Cent. Insol- uble Phosphor- ic Acid.	Per Cent. Total Phosphoric Acid.	Per Cent. of Ammonia.	Per Cent. of Potash.	Estimated val- ue Per Ton.	Number.
559	Homestead Potato Grower	Michigan Carbon Works, Detroit, Mich . .	9.06	0.71	0.15	9.94	4.43	6.10	39.02	559
560	Jarves Drill Phosphate	Michigan Carbon Works, Detroit, Mich . .	8.52	1.63	2.03	12.23	1.94	0.24	24.81	560
561	Ranner Raw Bone Flour	Michigan Carbon Works, Detroit, Mich . .	0.00	4.60	15.43	20.03	4.17	0.00	32.63	561
562	Bone Meal	Schrier Fertilizer Co., Evansville, Ind. . .	0.00	4.57	16.54	21.11	3.26	0.21	29.21	562
563	Raw Bone	H. L. Graf, New Albany, Ind	0.00	5.37	22.90	28.27	3.72	0.00	35.72	563
564	Diamond Soluble Bone	Walton & Whann Co., Wilmington, Del . .	9.36	2.98	1.98	14.30	0.33	0.00	22.09	564
565	Reliance Dissolved Bone	Walton & Whann Co., Wilmington, Del . .	8.25	3.08	4.41	15.74	0.00	0.00	20.77	565
566	High Grade Dissolved Bone	Walton & Whann Co., Wilmington, Del . .	3.53	9.26	8.79	21.58	2.85	0.00	35.99	566
567	Lake Erie Fish Guano	Jarecki Chem. Works, Sandusky, O	6.51	1.41	3.43	11.35	3.18	0.56	26.85	567
568	Superphosphate	Jarecki Chem. Works, Sandusky, O	5.72	2.03	5.44	13.19	1.07	0.63	20.17	568

COUNTY AND DISTRICT AGRICULTURAL SOCIETY REPORTS, 1890.

BOONE COUNTY.

The Boone County Fair was held August 18 to 22, inclusive, on the grounds of the Association, one-fourth of a mile north of the city of Lebanon. The weather for the first three days was rainy and unfavorable and the attendance was not so large as usual on the first days of the Fair, still on the whole the attendance was good.

The grounds, improvements and property of the company are valued at eleven thousand dollars, showing that the Society is in good shape financially and otherwise.

Boone County is taking her place in the front rank, as an agricultural and stock-raising county. Twenty years ago an average corn crop was from twenty-five to forty bushels per acre, now fields yielding sixty, seventy-five and even one-hundred bushels per acre, are not uncommon in this county; and a crop of less than forty bushels per acre is not considered good farming. The wheat crop this year was short, owing to an open winter and the cold snap last February and March, yet the average yield was about twelve bushels per acre.

The hay crop was excellent and was preserved in good order, yielding on an average about two tons per acre. Not much attention is paid to raising oats, rye or barley, but where sown a reasonable crop was the result.

Vegetables of all kinds were abundant and of excellent quality. The apple and peach crops were almost a failure, yet there was an abundance of small fruit.

Poultry raising has received considerable attention.

In the live-stock department outside of the speed-ring there were 460 entries.

Some of the finest hogs in the State are raised in this county, and the horses rival those of the far-famed blue-grass region of Kentucky.

Boone County was originally one of the heaviest timbered counties in the State and for years was wet and swampy, but in late years, under its magnificent system of public drainage, the swamps have disappeared and the waste places made to "blossom as the rose."

There are now in operation in this county about 1,000,000 rods of drain tile, ranging from six to eighteen inches in diameter, besides about 800 miles of open ditch or rather canals. There is yet plenty of good timber in this county, notwithstanding the large quantities cut and shipped.

There are about 275 miles of free gravel roads already built and several more in process of construction.

With its rich soil, magnificent system of drainage and free gravel roads, Boone County offers to the agriculturist an opportunity that is afforded him in no other country. An entire failure of crops has never been known here and there is no reason why an intelligent, energetic man should fail.

Lebanon, the capital, of the county, is a lively little city of 4,000 population, located in the center of the county and at the junction and crossing of the Indiana Midland and Big Four Railroads; it contains eight churches, three good school-buildings, a magnificent opera house and good store-rooms and business houses, four saw-mills, two flour mills and several manufacturing establishments; has natural and artificial gas, with streets lighted by electricity.

There are 132 school-houses in the county, of which 103 are brick and 29 frame. The value of the school property is \$197,540.

The total taxables of the county is \$10,000,000. The number of polls, 4,618. The total population of the county is about 27,000.

At present the prospects for the wheat crop next year are good, and unless something occurs to kill or injure the crop, we may look forward to an abundant harvest.

In the last few years there has been a great improvement in farm buildings. Where once was the log cabin, can now be found the neat, substantial farm house, and the log stable has given place to large and commodious barns.

CLINTON COUNTY.

The nineteenth annual exhibition of the Clinton County Agricultural Society was the peer of its predecessors in many respects. The exhibits in all departments were up to the high standard of excellence of all former exhibits, while in most classes it excelled many of the displays made at the more pretentious exhibitions of larger cities. This is remarkable when it is taken into consideration the fact that we have had three failures of the wheat crop in succession, which very materially depresses the farmer and discourages him from entering into competition or even attending the annual exhibitions of his county. Another thing that also hampered the efforts of the Association in making the last Fair a success was that their lease of the grounds from the county expired in March and there was no certainty at that time of getting it extended. However, this obstacle has now been removed—at the December term the Commissioners granted the Society an extension of lease for eight years—and many improvements that were deferred on this account will now be made. It is confidently expected that next year the Fair will be the largest ever given in the county. The officers and directors are encouraged by the action of the Commissioners to put forth their utmost endeavor on the twentieth annual exhibition, and this feeling is shared by the people of the whole county. When a feeling of "reciprocity" like this exists, success is always insured.

The finances of the Clinton County Agricultural Society are, as they have been for years past, in good condition. Premiums are always paid in full, and as a result of judicious management there is at present a snug sum left in the treasury, and the Society is free from debt. Liberality in premiums, fair and courteous treatment by the managers of the Association has been met by the people, and it may be safely said that the Fairs held at Frankfort have no superior anywhere in the State, and none are more generally patronized by the people.

Clinton County is one of the progressive counties of Indiana, peopled by an intelligent, wide-awake lot of people. The soil is rich, producing grains and

grasses of all kinds in great abundance. The agricultural development of the county is the pride of all her citizens. The county contains a population of nearly 40,000. The farms are models of neatness, and the buildings substantial and comfortable. If there is one thing more than another that impresses the stranger on taking a drive over the county it is the handsome, commodious and well-kept residences and substantial and neat farm buildings, with a perfect network of gravel roads from one end to the other, showing her people are up to everything that is modern. Frankfort, the county seat, is a sprightly little city of 8,000. Four trunk lines of railroads pass through the city, and the shipping facilities are better than most towns of four times the size. She has ten churches, three handsome school buildings, two daily and three weekly newspapers. The place supports two good banks, which are as solid as the rock of Gibraltar. The year 1890 was the banner year for Frankfort's prosperity. She secured the main shops of the Toledo, St. Louis and Kansas City Railroad, which are now being built. This alone will increase the population of the city to 10,000 and start the ball rolling for a prosperous future. This will bring other manufactories, and it will not be many years until Frankfort will stand without a peer of any city in the gas belt.

DEKALB COUNTY.

The first meeting of this Association was held on the grounds of the Association, September 8 to 12, and was a success in every department. Everything was better than anticipated, and would have been a great success financially had we been favored with favorable weather. I am glad to report that the receipts were sufficient to pay all premiums and expenses, with a balance in favor of the Fair of over fourteen hundred dollars. The Society owns forty acres of ground, and has a very complete and extensive set of buildings. We feel encouraged and will make great efforts to get to the front rank.

The agricultural interests of the county are in somewhat discouraging circumstances, but we think it will not result disastrously to any branch of business.

Wheat was about two-thirds of a full average crop, and fair quality. A large acreage has been sown and is in excellent condition.

Corn yielded better than was anticipated, a good crop in portions of the county, an inferior one in the more elevated portions. The yield will make a full half crop and farmers will have sufficient for the demands of home use.

Oats were a short crop and light in quality.

Hay was a grand crop and was secured in fine condition.

Potatoes about one-third of a full crop and inferior in quality.

Fruit of all kinds almost a total failure.

Live stock of all kinds in good condition, and character of all classes improving. Many good horses have been brought into the county the past year, and I can report the same in cattle and sheep. Good sheep are high in price in comparison to other live stock.

Hogs were abundant and in good condition, but were low in price and have been about all sold. Farmers seem inclined to sell out at very low prices, and breeding stock will undoubtedly be scarce in the spring. No cholera of any consequence reported.

DELAWARE COUNTY.

The Delaware County Agricultural Society held their Thirty-eighth Annual Fair on their grounds adjoining the city of Muncie, August 19 to 22, under the most trying and adverse circumstances. Rain continued until Thursday noon of the week of the Fair. The rain, however, proved a great stimulus to our success. After ten weeks of excessively dry weather, the rain infused new life into the people, and our gate receipts were most satisfactory; what promised a complete failure, financially, proved an entire success. The Society during the past year expended \$5,200 on new buildings, fence, track and beautifying the grounds; until now they are second to none in the State. The Fair, as usual, was a complete success; the entries in all departments were large and exhibits fine. Expert judges were used in all departments, giving universal satisfaction. Premiums were paid in full, with a small balance left to apply on our improvement indebtedness.

Delaware County, along with her sister counties, has suffered much this year with a short yield of corn, wheat and oats; the quality, however, was much better than the year previous. Never in the history of the county has there been such a harvest of hay as was cut this year, and it has and is proving a great help to the farming community. The present outlook for wheat is good, and should we have a favorable winter and spring, there will be an unusually large wheat harvest in 1891. The rapid growth of our city has created quite a home market for small fruits and vegetables, and many of our farmers are taking advantage of the new field with marked success.

DEARBORN COUNTY.

The Eleventh Annual Fair of the Lawrenceburg Agricultural Association was held August 20 to 23. The weather was very unfavorable, it raining up to and including Friday morning. About ten o'clock the clouds began to clear away, the people began to come, and when the gates were closed on Saturday night our receipts were sufficient to pay all premiums and other expenses and leave a small balance—hence a financial success. The exhibition in all departments was fully up to the average, and in some better than usual. Everybody was well pleased, and the universal expression was, "the best Fair ever held here." Our increased success the last two years may be attributed, partially, to the abandonment of the Southeastern Indiana Fair held at Aurora. While Dearborn is a great county, she can not support successfully more than one Fair, yet our Association has never failed to pay its premiums and all other expenses dollar for dollar.

GREENE COUNTY.

The annual Fair of the Greene County Agricultural Society was held at Linton the first week in September. The Fair was in many respects a success. The weather was very fine and the attendance good.

The live stock display was never better, but the exhibit in vegetables, fruit, and field productions was not up to the standard, in consequence of the very dry weather cutting those productions short. Many improvements were added to the grounds this season, but in consequence of loss by fire of considerable of the Society's improvements, thereby incurring an additional expense of several hundred dollars, we were compelled to sell some shares of stock in order to pay premiums. The improvement in horses of late years seems to lead all other enterprises. The breeding of draft horses, general purpose and roasters is receiving considerable attention. Our county in general seems to grow in agricultural wealth, which is due very much to the bringing into cultivation of hundreds of acres of swamp and heretofore untillable land by means of ditching and tiling, by private and public means. There is also a gravel road under construction, extending from Bloomfield, the county seat, west through a very fine agricultural portion of the county.

But the greatest source of improvement and wealth in our county is brought about by the development of our extensive and, we think, inexhaustible, fields of bituminous coal, which lie in the western portion of the county, the workings and developments of which are a great source of revenue whose benefits affect almost all classes. The farmer gets better prices for his produce, and the laborer gets better prices for his toil, than they could get were it not for the development of these magnificent coal fields. Taking it all in all, we feel that Greene County is on the upgrade, and is destined to become a very wealthy and prosperous county.

GIBSON COUNTY.

The Association held its Thirty-sixth Annual Fair on beautiful grounds near Princeton. The meeting was held under very adverse circumstances, as it rained the first three days, but Thursday morning the clouds broke away and the people began to arrive by the thousands until 15,000 people were on the grounds and we were able to pay all premiums and bills in full and have \$1,100 left in the treasury.

Gibson County is justly famous for its fine horses and a better display was never seen on a Fair ground, not excepting the State Fair. Our stock is all standard bred and we can well boast of it.

The show of cattle was excellent, there being several herds of Shorthorns, Herefords, Holsteins and Polled Angus, which were beauties.

The hog and sheep pens as well as the poultry house was well filled. The display in the floral and fine art halls was simply immense, and showed the art and skill of our intelligent ladies.

The increase in wealth of the east half and middle of the county within the last year has, to a great extent, been brought about by the development of bitumi-

nous coal fields in this section of the county, also of the opening of a large gas well at this place. Our city and vicinity is underlaid with an eight-foot vein of coal at the depth of 150 feet. The resources of the county are fast attracting the attention of the people in other localities, and immigration is becoming greater each year. Our county is still classed as the banner county of the State for agriculture and imported stock.

GRANT COUNTY.

The Grant County Agricultural Society held its Fair August 26-29. Although beginning with the most unfavorable weather, proved to be one of the best, if not the very best in the history of the county.

Owing to a continuous slow rain many horses were taken away on the first day of the Fair, and the officers were much discouraged, but with that earnest purpose and unconquerable determination, both of which our officers are noted for, the bright side was kept forward, and on the second morning the sun came out, the clouds passed away, the mud dried up sufficiently to make splendid roads without dust. Everything and everybody seemed filled with new life, and all worked in earnest co-operation to make the Grant County Society stand out as one of the successful Fairs of 1890.

Everybody was busy. All the stock departments were filled to overflowing. Space that had been ample in former years was found insufficient. New stalls for horses and cattle had to be built to meet the required accommodations.

Many new exhibitors were present as well as the return of the old ones. The entries in nearly all the departments were far in excess of those of former years, and the awards gave general satisfaction.

Notwithstanding the shortage in farm products the Fair was a success financially and in the interest taken by the people. During the life of the new organization it has never failed to pay its premiums, dollar for dollar.

The confidence of the people is becoming more general, and although the crops have been comparatively failures for the last three years, especially in that of wheat and corn, potatoes, fruits, etc., with another brilliant effort a large acreage of wheat has been sown, and at this date, February, 1891, the prospects look very flattering. Prices for stock of all kinds have been so low that much complaint has been heard from the farmers, yet, with a few rare exceptions, the health of stock has been good; less cholera in the county than for years. The crop of hay was unusually large, the pastures rich, hence plenty of fat cattle, but market low. The farmer's lot has been rather a hard one, yet, as in all things of life, "man never was, but always to be blest." Farmers are looking hopefully to the future.

We feel that with plenty of gas, the discovery of "oil," the rapid growth of the county and towns, manufactories of all kinds coming among us, and all the facilities afforded by nature and art, the gradual growth in breeding fine stock, which has, by the magnetism of the few energetic starters, broadened until we have our own registered cattle of various breeds, imported and standard bred horses, and throughout the State, and even the United States, the name of sheep

can hardly be spoken without associating with it the name of John L. Thompson. Besides we have hogs of all grades and breeds. All in all we feel that the managers of the Fair have reasons for congratulating themselves for the success attained last year, at the same time feel assured that a brilliant future is awaiting them. So, thankful for the past and hopeful for the future, we shall try to send in encouraging reports as our people increase in prosperity and interest, and when we can all work for the one great purpose in farm life, "the survival of the fittest."

HANCOCK COUNTY.

The crops this year have been very good with the exception of wheat, which was a partial failure. The deficiency caused by the wheat failure was nearly made up to the farmer in the extraordinary yield of hay and corn. Many farmers plowed up ground sowed to wheat in the fall of 1889, and put it in corn, making a greater acreage of corn than was ever known in the history of the county. The fruit crop was very small. The live stock out-put was good, considering the low, dull market.

The interest in farmers' organizations at this time is intense. The F. M. B. A. and Alliance have active Lodges in every township in the county.

Natural gas still plays an important part in the interests of this county. Two glass factories of large dimensions have located in our midst since our last report, and others are to follow soon. I forgot to mention that we held one of the most successful Fairs ever held in the county and in Eastern Indiana, and we expect to have a better one this year.

HARRISON COUNTY.

In regard to the Thirty-first Annual Fair of the Harrison County Agricultural Society, we can well and truly say that it was a great success, even beyond our expectations. It was the intention of the officers at the beginning of the year to build a grand stand and make a number of other necessary improvements on the grounds. We had the misfortune of losing thirty-six of our box-stalls and our feed stable by fire, which involved a loss of \$600 to the Society, upon which there was no insurance. Knowing the necessity of having as many stalls as possible, we felt it our duty to rebuild at once, and with our limited means we concluded to abandon our other work, but after completing the stalls we consulted the directors, and they advised that we go ahead with our plans, even though we left the Society in debt. Acting upon their suggestion, we went ahead and built thirty-six new box stalls and a feed stable, a grand stand 100x22 feet, a new building for the ladies, 54x20 feet, repaired our track, fences, and all other necessary repairs, and found ourselves at the beginning of the Fair with our treasury empty, a premium list of \$2,750 and a debt of \$300, besides the necessary expenses of running the Fair staring us in the face. Still we felt confident of pulling through all right, providing we could have suitable weather, which proved to be delightful, with the exception of its raining Tuesday afternoon, and our hopes were realized, as our annual report showed a balance of \$545.13 at the close of the Fair in the

hands of the treasurer to begin another year with. The number of entries was equal to any former year in most all of the classes, but the displays were not quite as large, owing to its raining on Tuesday and preventing a number of exhibitors from getting to the ground with their displays in time for exhibition. The displays of fruits and vegetables were good, considering the failure of crops in that line. The wheat and corn displays were both good, and the number of horses and cattle proved to be more than we could furnish stall room for. There seems to be a growing rivalry among the farmers of this county as to who shall produce the best displays at the Fair, and who shall have the best stock, which adds very materially to the benefit of the Society. We adopted in part the expert system for our Fair, and found that it gave satisfaction, and acting upon the suggestion of our State Director, J. Q. A. Seig, we have concluded to adopt it in all the classes next year. Our Board of Directors are among the progressive and live farmers of our county, and are doing everything to attain the best possible results for our Fair.

Harrison County, aside from being up to the standard with her Fair, is as well adapted to mixed husbandry as any other county in the State. The farmers are engaged in the raising of all kinds of stock and poultry. As to fruit, our county is second to none, and especially the southern portion. We have in operation in our county a number of roller mills, two valuable stone quarries and others being opened up, besides quite a business is being done in shipping lumber. Harrison county is in a very prosperous condition. The farmers are paying off their mortgages and getting in good shape. A few more years will bring us to the front.

HENRY COUNTY.

Henry County held her Thirty-ninth Annual Fair at New Castle, August 12 to 16. The number of entries aggregated above those of former years, and the exhibits were superior in quality. While in some departments the displays varied as to the former, the latter was true of each. The receipts, however, were not up to the standard, and while the Fair was more than as instructive and entertaining to the patrons, it was a slight disappointment to the management in a financial way, the weather being adverse on one of the usual "big days." The premiums were paid in full on the last day of the Fair, as is the standard custom of the Society, and all pronounced the Fair quite a success. The display in fruits, vegetables, and in farm products, was a surprise to many, the drouth having been severe in the county. For this reason the exhibits in these departments elicited an added appreciation—seemed an object lesson against discontent, and to offer emphasis to the many sterling merits which our county possesses.

The county is central in the State from north to south, and is in the second tier from the east. The quality of the soil ranks with that of the very best, yielding well in varieties of products. Blue River and Flatrock course the county from northeast to southwest in almost a perfect parallel. Soon both will have been dredged, waste land will be almost unknown, and tillage will go on to the water's very edge. Railroads so traverse the entire county as to afford to every small neighborhood the very best mail and transportation facilities and highest markets.

The county seat is centrally located, and is the focus of numerous gravel roads. It is touched by three distinct railway systems, and is favored with several manufacturing industries. New Castle has its own water-works, and is furnished with natural gas more economically, perhaps, than many sister towns with more fair opportunities. It is fast offering a profitable home market to the producer.

HUNTINGTON COUNTY.

The "Twenty-third" Annual Exhibition in the history of the Huntington County Agricultural Society has come and gone—passed into oblivion as it were, with the exception of leaving an opportunity for correcting any errors (and there were many) that may have occurred, and also giving one the benefits of the correction in the management of future Fairs.

We were quite unfortunate in the date of our Fair this year, on account of like organizations selecting our dates, which very materially affected our entries in draft horses, as well as cutting the number of our speed entries, making it necessary for us to open "Special" classes, as the published purses failed "to fill" according to rule; this, however, was one of the fine features of the exhibition, and owing largely, we think, in part at least, to our having joined "The American Trotting Association," which, as the name implies, was a bar to "ringers," requiring them in all cases "to go in their classes." At this point I will state that we do not allow any gambling or pool selling on our grounds, nor the sale of intoxicating liquors, which tends to elevate this feature of the exhibition, and which, with these restrictions, affords amusement for others than those who "dote on the horse," and attend the Fairs to see their favorite "go." "Moral": All associations should join one or the other of the "National Associations," and thus contribute their mite toward wiping these "ringers" forever from the face of the earth. The success of any Fair depends largely on good management and favorable weather. Our people are awakening to their own interests and that of the Society, and realize that these annual gatherings are for their mutual interest, and from which they derive large benefits, and by their presence and competition aid largely in the building up of this important institution of the county. The class of exhibits this year, while not so numerous as compared with former years, were superior in many respects. The display of fruits and vegetables were never as large in our history, in fact we did not have room in our large floral hall to properly display the large collection in this class. The display in the live stock department was exceptionally fine. A much better feeling prevailing in the matter of sheep culture, a better grade being the result, Oxfords, Southdowns and Shropshires predominating.

The condition of the cereals grown was only fair. Wheat, to a certain extent, was a failure, owing to the very heavy rains early in the season, not more than half a crop having been harvested, and in many instances the fields were plowed again without any attempt to cut the grain. Other crops were only fair, and taken all in all, the situation for the farmer was anything but pleasing; but there never was a cloud without a "silver lining," and the prospects are very flattering for an

abundant crop next season, with a largely increased acreage, more than average care having been taken in the preparation of the ground and sowing a good quality of seed.

During the year we have made some permanent improvements in the matter of fencing our track with a strong wire netting, six feet high, affording a better view from any part of the grounds during trials of speed, as well as adding to the already tasty appearance of the grounds. We expect to add several new features to our forthcoming list, and trust to the future to judge of its merits.

JACKSON COUNTY.

Owing to very unfavorable weather the Fifteenth Annual Fair was not held. After haying commenced on September 22, the Directors concluded to declare the Fair postponed for the year. The prospects were fine for a good exhibition and the citizens appeared to manifest a greater interest than they had in former years.

The corn, wheat, oats, barley and rye crops, which are usually good, were below the average this year, owing to the very wet spring, but the crop of timothy and clover hay was larger than for a number of years.

The growing wheat crop appears to be doing fine and will make a large one, if the conditions remain favorable. The farmers are using a great amount of bone dust, especially on the clay lands, and find it is profitable.

There is strong, growing feeling among our citizens in regard to the improvement of our county roads and it is very probable we will have a free gravel road extending through the county within the next two years, from the southern to the northeastern part. Such a road is very much needed, and this, together with the ditching that has been and will be done, will advance the farming interests of our county very materially.

A Farmers' Institute was organized this fall and there is a decidedly active interest taken in the meetings, and it is to be hoped it will be continued, as it will be a source of great benefit and information to those engaged in agriculture.

Since our last report we have been favored with another railroad passing through our county from west to east, the Evansville & Richmond, this makes three, and it is our hope that in the report for next year, the completion of another will be given, a new line from Indianapolis to Louisville, which is now contemplated.

JAY COUNTY.

Jay County has, for eighteen years consecutively, invited to her annual Fair the progressive farmer, the careful stock raiser, the expert mechanic, the industrious lady and the skilled artist. The Nineteenth Annual Fair was held September 30 to October 3, on the Society's grounds, near Portland. Never before were there so many entries, especially in the stock department. Fine stallions, a great number of draft and general purpose horses, brood mares and colts on exhibition, and some of the finest cattle, hogs and sheep that the country around affords, were entered for premiums.

Our county suffered along with other counties in the State, in bad crops, the quantity and quality being considerably below the usual standard, hence the agricultural display was not complete, while that of fancy work, dry goods, culinary preparations, agricultural machinery, carriages and wagons, was fully equal to the show at any county Fair in Eastern Indiana. Everybody complimented the displays very highly, and were much pleased at the interest taken in the Fair by the people in general. The attendance each day was almost all that could be desired. The people for miles around came to the Fair and went away satisfied with what they had seen. Everything points to the fact that the people of the county are becoming interested in agricultural displays and will give them their hearty support. Our farmers have learned that upon their shoulders the world rests, and we know no spot so well adapted for the farmer to carry these burdens with ease and pleasure as upon the rich and productive lands of Jay County, with over two hundred miles of free gravel roads, whereby he can transport his products to the various points with ease.

Just beneath the surface we have another great system of transportation which is rapidly growing, and if stretched out in one continuous line would extend many thousand miles. Thus by the use of drain tile the domicile of the old bull-frog has been given to the farmer. In fact, we know of no occupation so honorable, so pleasant and so profitable as that of the farmer and stock-raiser of Jay County. The agricultural interest of the northern part of this county has been given a new impetus within the last year, by bringing into cultivation hundreds of acres of wet lands that were formerly considered worthless.

The improvements made on our Fair grounds from year to year are all good, roomy, substantial buildings, well arranged for the purposes for which used. In a word, the exhibition was by far the finest ever seen in this locality, and one well calculated to stimulate the efforts of the managers for the coming year, 1891.

JEFFERSON COUNTY.

The Jefferson County Fair Association, organized in November, 1889, with a capital stock of \$50,000, held its first meeting August 12 to 15. This the first effort was in every respect a success, and we feel proud to state that no Fair in Southern Indiana exceeded ours as to size of crowd and stock exhibit.

Our grounds are what is known as the Beech Grove Driving Park, where Barus, Red Cloud and other old-time trotters exhibited speed in '74; a more beautiful location or more natural Fair grounds is nowhere to be found. The track is situated so every spectator can view every step or motion of the horse. Workmen will start in at the opening of the spring to erect a free amphitheatre, extending the entire length of the home-stretch, from turn to turn, so that the public may rest comfortably during speed exhibits. This improvement was made necessary by the number who flock to our Fair. Over ten thousand people passed through our gates on August 14, last. Our amphitheatre only seats three thousand; the new improvement will seat eight thousand more. Our cattle and horse exhibits were exceptionally good. "Kentuck's" renowned generosity manifested itself and sent a fine representation.

Our water supply is unlimited. Having sunk wells to a depth of 100 feet below the bed of the Ohio, we pumped therefrom by means of small engines a continual flow of the finest water ever pumped from the earth.

We are "in the swim" now and have everything necessary to make our county celebrated for its Fair, and this we intend doing. Our first venture in every respect a success, we guarantee our next meeting to eclipse our first.

The season has been unfavorable in this locality for farm products. Wheat was short and a small average resulted; fruits a complete failure, excepting berries. An average crop of berries is quite a boon here and came in a very good time this season. The gardener is the only farmer this year who will reap a bountiful harvest. The early vegetables were cut short by drouth, but fall favored the late crop, and our markets were full of exceptionally good vegetables till the middle of November, and unusually large prices were received.

The hay crop is good and prices fair.

Corn is but about one half a crop, but of good quality and has been cribbed in good condition.

Stock in this county looks well and pastures are good, and spring will open with a good marketable supply of cattle in our county.

JOHNSON COUNTY.

The Second Annual Fair of the Johnson County Agricultural, Horticultural and Park Association was held September 16 to 20. Fortune smiled on us in the way of good weather, as it will be remembered the week preceding and the week following our Fair the unfavorable weather materially interfered with the success of our neighbors. It matters not how well a Fair is advertised, or what its reputation is for grand exhibitions and providing means for entertaining the people, a rainy week does more to dampen the ardor of Fair enthusiasts than almost anything imaginable. The week preceding our Fair the weather caused things to look blue and discouraging, and many on this account predicted a failure.

Over five hundred dollars was expended in additional improvements for the accommodation of exhibitors. More than fifty additional horse stalls were erected, and even then a few were obliged to find stable room outside the grounds. Two hundred and forty-eight entries in this department is certainly an evidence of the fact that Johnson County farmers and horsemen have an eye open to the care, development and training of the best breeds of horses.

The exhibits of cattle, hogs, sheep and poultry were most excellent. As all the stock in these departments was of such rare excellence, no lack of enthusiasm marred in the least the lively interest taken by exhibitors while awaiting recognition at the hands of committeemen.

Notwithstanding the long, dry spell of weather in July and August which so much injured the growth of agricultural products, the exhibits in this line were exceptionally fine. There were forty-nine entries of field corn, and of quality as good as the very best to be seen anywhere. As an evidence of this fact, the week following at the Indiana State Fair, with some of this same corn Johnson County, as usual, took in a large share of the premiums there offered on corn.

The horticultural show was fairly good considering the almost total failure of the fruit crop.

And last, but not least, comes the miscellaneous and ladies' departments, which were, in splendor and attractiveness, about all that could be desired. There is no use denying the fact that these two departments are indispensable to a successful Fair. Yet in them there is more fraud, deception and imposition practiced than in all the other departments of the Fair put together. As a rule, men are thought to be quicker than women to take advantage in their trading and dealings with each other, but when it comes to a county or district Fair the women, or at least many of the women exhibitors, are hard to head off.

This matter was referred to in report of 1889 as one of the drawbacks to successful county Fairs. It is a subject that will bear discussion at the hands of the members of the State Board. Every Fair management should deal fairly and frankly with all of its exhibitors, and in fact with everybody else, and it should see to it that the exhibitors be compelled to deal fairly and honestly with each other and be made to comply strictly with the rules of the Association.

The one judge, or rather the expert judge system, was given a test in several the departments, and proved to be very satisfactory to all concerned. It seems now that in time the old "fogy" way of picking up inexperienced persons to "guess" upon the quality and merit of stock and articles on exhibition is a thing of the past.

The speed department was one of the interesting features of the Fair. The Association held membership in the American Trotting Association, and under its rules all competition in speed was fairly and honestly contested.

All premiums were paid in full, leaving a good profit accounted for, which made everybody interested feel good. The management certainly has reason to congratulate itself because of its past good work and for the energy and push manifest, which means success next year, should the weather be favorable.

KNOX COUNTY.

The Twentieth Annual Fair of our County Agricultural and Mechanical Society was held on Fair Grounds near the city of Vincennes from September 29 to October 4. The week opened with reasonably fair weather and the entries were made rapidly and run up to a larger number than for any previous year. As the week progressed, however, the weather became threatening and rainy, causing the attendance to fall largely short of what it would have been, though the attendance was up to the average. Despite rain, however, the Fair was more of a success in some respects than ever before. There was a wonderful display of horses, better than we have ever had. The display of machinery was almost double former years. The fine art display was a superior one. The agricultural exhibit was a wonderful one, considering the year, there being as large corn and as fine wheat shown as one could wish to see; in fact, everything was up to the standard, and in some instances above, except in the cattle and hog departments, which were short of former years.

The speed ring deserves special mention, as it excited intense interest and drew large crowds.

The Association, this year, made large improvements on its grounds, and is practically out of debt. The officers and directors have never, at any time, taken a deeper interest in the Fair, all of them expressing the most unbounded confidence in the future of the Association.

Knox County is one of the banner wheat and corn counties of the State. The yield this past year was hardly up to the average for the same reasons that crops have fallen short throughout the country generally.

We have been ranging right up to the top as a wheat county for many years, and we have a superior corn county for the reason that we are surrounded on three sides by river bottoms unexcelled for their fertility. What has hitherto been considered our poorest land, viz.: sand land, has all at once become very valuable for the purpose of raising melons.

The writer of this report knows of large tracts of sand land that brought more per acre in melons last year than the land itself was, some years ago, considered worth.

The prospect for wheat the coming year is as good as it has ever been. The plant is vigorous and hugging the ground closely, and altogether in such a condition that it would be almost impossible for the hardest winter weather to destroy it.

Farmers generally are in a good condition—very much better than they were four or five years ago. Foreclosures are of rare occurrence, and land brings a better price, though far too cheap for its real value. The man who passes over Knox County in search of rich and fertile land and low price, misses it.

We have held two very entertaining and instructive Farmer's Institutes in the past year. The Institute is regarded as a good thing, and we think great good will come of it.

All in all, Knox County is to be congratulated on her Fair, the fertility of her soil, and the general thrift of her people.

LAKE COUNTY.

At the south end of Lake Michigan, bordering on Illinois, in Lake County, the northwest county of Indiana. Its county seat is Crown Point, thirteen miles from the Lake and thirty-five miles from Chicago, population two thousand, with an altitude of 132 feet above Lake Michigan.

With the exceptions of the lands bordering on the Lake and on its southern border along the Kankakee, it is chiefly fertile prairie, interspersed with thrifty groves and timber along its water-courses.

In the early days the wilderness of sand ridges and river along the borders of Lake Michigan was looked on as a barren waste, almost worthless, but the wealth of that region lies in what casual and superficial observers considered as its disadvantages. Very few at a distance can have any idea, or can realize the growth in wealth and of the improvements on the Calumet river, and in fact on the whole south shore of Lake Michigan in Lake County.

The improvement of the harbor at the mouth of the Calumet has given a value to all its waters that can hardly be estimated; promising to be one of the best harbors on the Lake, it has made it possible to utilize the Calumet, its lakes and its bayous for Lake commerce, and its possibilities seem to grow and expand with such rapidity that only those who see for themselves can believe the marvelous growth of the Calumet country.

The Calumet region in Lake County owes its value and its importance to its location, and particularly to the vast expansion of Chicago; such proximity to the city has had a great influence in shaping the agriculture of Lake County.

At Hammond, on the Calumet river, is located the big slaughter house of G. H. Hammond & Co. They kill about 300,000 head of cattle a year. Their dressed beef finds a market in the Eastern cities, and in Liverpool, Glasgow and London, across the sea.

At Whiting is the refinery of the Standard Oil Company. Whiting is on the Lake shore. East Chicago is on the north bank of the Calumet river. Bordering on the Lake is a manufacturing town only a few years old. Further east between the Lake shore and the Calumet river is the 3,840 acres purchased by Armour, Morris and others (The Big Four), known as the stock yards purchase.

Our Annual Fair, 1890, was held at the Fair grounds in Crown Point from September 30th to October 3d, inclusive, this being the thirty-second Fair held in this county. We had good weather and a good attendance, our people generally taking an interest, making it a social holiday. We charge ten per cent. on all entries except those receiving diplomas, and have always paid our premiums in full.

Our Fair recognizes horses as one of the most profitable branches of farm industry. Our nearness to Chicago makes this county one of the sources of supply to the city, the monthly sale at Crown Point is well attended by buyers, and the sales add considerable to the incomes of the farms of Lake County. The show of horses was up to the average, fully sustaining the reputation of previous years.

Railroads and the growth of Chicago have changed the cattle industry here. Part of the milk supply of Chicago goes from this county, and the farmers are feeding nearly or quite 10,000 cows, not all for milk, but for dairy purposes.

Sheep.—Very few in the county.

Hogs.—A good many fed but not as largely as formerly.

Corn.—Is largely raised. This year we shared in the general poor crops of the Northwest; some exceptions.

Wheat.—A small quantity raised of a good quality in eastern part of county; greater portion of flour imported from other localities.

Oats.—This is an oat county, but this year heavy rains early and then hot and dry weather diminished the crop nearly one-half.

Dairy.—There are several butter and one or two cheese factories. Some private dairies competed at the Stock and Dairy Show in Chicago this year and took prizes. George W. Davies, of Dyer, and Herman C. Beckman, of Brunswick, both in this county, being successful competitors.

Hay.—A foremost crop with us, crops that go to make up feed for horses, cattle, etc., are the kind mostly cultivated.

Tiles.—Tiles are used more and the demand increasing.

To hold a successful Fair in a county the farmers must be fairly well remunerated for their work on the farm, or they become indifferent to all such enterprises.

Prices have been too low, but with more extended markets for our surplus products, the farm will pay better, and labor receive a more liberal reward.

MIAMI COUNTY.

Our Society was organized in March, 1890, and the First Annual Fair, held from September 15 to 19, was a success in every particular. The attendance was the largest at any Fair ever held in this part of the State. The large exhibit of horses in the show ring and the many entries in the speed ring were among the principal attractions.

The swine and sheep department had a very good exhibit, while the cattle show was rather light, owing to the small premiums on herd showings. The other exhibits were well filled.

This being the first Fair, I can not give any accounts of improvement in the different departments. The condition of agriculture in Miami County never was better. The acreage of wheat for 1891 will exceed the preceding year by about 25 per cent. Farmers are at present taking more interest in the breeding of live stock, especially of the better grades, and Miami County is already stocked with a good number of trotting horses.

MADISON COUNTY.

The Twenty-third Annual Fair of our Agricultural Association was held on its grounds within the limits of the city of Anderson. The Fair proved only an average with former years. All departments were represented, some much better than others. The total receipts compared well with last year. The display of corn and wheat was very light. Of vegetables there was a light showing. The show of horses of all classes was considered very good, above the average of any former year. Of sheep, hogs and cattle, a light exhibit. Corn is selling now at 60c; hay, \$12 per ton; potatoes, \$1.20 per bushel; apples, none of this county's raising in the market. Our county has increased in population 10,000 in the last eight years, and now stands eighth in the State. The city of Anderson is taking wonderful strides toward a magnificent city, with 13,000 population at this time. Factories still locating; seven or eight will start operations very soon. All of the country towns continue to grow. Prosperity for last three years due to discovery and use of natural gas.

MARION COUNTY.

Steadfast in purpose to pursue methods for the mental, moral and financial advancement of those engaged in the noble pursuits of agriculture and horticulture, our Society is still on the march onward and upward.

Knowing the happy result on body and mind of having the inner man well replenished to start on the year's work, the February culinary exhibition, partaken of to the satisfaction of all, amply provided for vital energy. This was scarcely expended before another feast, combined more largely with the mental, was announced for the 27th and 28th of March, as "The Farmer's Round-up Institute." It, too, was a grand success.

Our hunger was only allowed to again become normal when "A Trip to Purdue Experimental Station" at Lafayette, was announced. The Society was again feasted with the choice viands for physical and mental digestion, and, as one of the members of our Society was shown to have grown the finest strawberries in the State, we came home with the feeling that we were, at least, on the right road toward success in the growing of this luscious fruit, and that much had been added to our knowledge on many important subjects.

Owing to this visit, our Society was soon accorded the privilege of appointing two young men, upon whom to confer the two scholarships in the Agricultural Department, offered by the President of Purdue University.

Owing to the drouth the report of the result from the seed distributed from Washington has not been called for, though there was on the table at the fall exhibition of fruits, vegetables and flowers, some samples of the German sugar beet.

The dry weather following the late March freeze results in a short grain and fruit crop. There has been an abundance of well-cured hay and a full crop of garden vegetables. The fine autumn weather restored good pasture and delayed the "feeding season," and now a snow blanket protects the wheat sowed for the coming harvest.

We are saddened to record being deprived of the helpful presence of our much esteemed venerable member, Dr. Ryland T. Brown, but gladdened to know that, though he has been called to a higher state of existence, we have still remaining with us much of his recorded wisdom, and, best of all, the memory of his noble Christian example.

Extra effort has been made to interest others of our calling to attend our monthly meetings who have never been numbered among our members.

The subjects programmed for discussion have been of vital importance to our members. Valuable papers have been read before the Society, those requested by the press for publication being as follows: "How to Raise a Large Potato Crop," by B. F. Bushong; "First-class and Slip-shod Farming Compared," by Dr. Collins; "Dreams and Realities," by Mrs. Virginia C. Meredith, and "Fall and Spring Planting of Fruit Trees and Best Varieties for the Farm Orchard," by C. M. Hobbs. At our last meeting, with great interest, we listened to an address by Rev. Dr. Joseph A. Jenckes, in which he enlarged upon the practical benefits to be derived by farmers from the study of meteorology.

The fall exhibit of vegetables, fruits and flowers was creditable, though not as large as in more productive years. There was not as many entries, in variety, as the Society offered premiums for.

The end of the year finds us still earnest in faithful endeavor to enhance the interests of the agriculturist and horticulturist, and to secure, in the near future, such justice in the exchange of products as will prove his dreams realities.

MONROE COUNTY.

Monroe County had no Fair this year. The date for holding a Fair was fixed and advertised but was afterwards reconsidered.

Our farmers are becoming more enterprising and progressive each year. Thoroughbred stock is fast taking the place of scrubs.

The amount of commercial fertilizer used is increasing each year; we are beginning to find that it is economy to do less plowing and have more blue grass and better stock.

Monroe County can boast of an inexhaustible supply of as fine building stone as can be found anywhere. There are now thirteen large quarries in operation and more will be opened in the spring; those now in operation can not supply the demand.

We are fast becoming noted as a fruit-growing people; experts tell us we raise the finest apples in the State. The Horticultural Society of this county has carried off the first premium two years in succession, as offered by the State Horticultural Society at the State Fair.

Corn, wheat, oats and potatoes, about two-thirds of a crop the past year; hay, above the average.

We have five free pikes leading into Bloomington, the county seat; although they are a very expensive luxury it would be hard for us to do without them now.

MONTGOMERY COUNTY.

The preparations for the Eleventh Annual Fair of the Montgomery County Agricultural Society excelled any of the previous years, and had the weather been suitable we could have fairly boasted of an exhibit second to none in this State.

We had more entries of live stock and of a better class than at any previous Fair, in fact the entries in all classes excelled any year in the history of our Fair. But owing to a week of bad weather our receipts were about nine hundred dollars short of our expenditures; however, we paid every dollar of our premiums in full, and thereby have the good will of the stock men from all over this and adjoining States. To encourage and develop the industry of beet sugar, the Society offered a premium for the best lot of sugar made from beets grown in this county, of which there were several entries. The soil of this county has, by actual experiment, produced from 8 to 10 per cent. of sugar and we are looking forward to the time when we will make all of our own sugar.

It is unnecessary to describe in detail our grounds, as they are conceded by all to be the most beautiful and convenient of any in the State; and each year the permanent improvements made upon them add greatly to the comfort and convenience of the public.

No intoxicating liquors are allowed on the grounds, but in their stead numerous fountains of pure spring water are continually running, a great convenience to stock men, and adding greatly to the comfort of both man and beast.

The Society has been compelled, on account of increased entries each year, to build additional stalls and buildings, a sure indication of prosperity, and we hope in the near future to build first-class stables, so that horsemen from all over the State will find the accommodations of the Crawfordville Fair equal to any in the State or elsewhere.

The crops of Montgomery County the season past were equal to those of any county on an average, in fact as a general purpose county, there are none better adapted to furnish all the necessities of life.

Free gravel roads traverse the whole county in all directions, and under the late law we have purchased all the toll roads leading into the county seat, and now have the satisfaction of riding on good roads without the bother of being stopped every few miles to pay toll. We have five railroads passing through the county in as many directions, and with the exception of a small portion in the southwestern portion all the farmers are within three or four miles of good railroad markets.

NEWTON COUNTY.

Twelfth annual Fair of the Newton County Agricultural Association, held at Morocco, Indiana, September 9 to 12. Owing to the inclemency of the weather the Fair was not as great a financial success as it would otherwise have been. However the premiums were all paid in full and a small balance left to the credit of the Association.

The exhibit of all kinds of stock was the most complete in the history of the Association.

In the speed ring some of the best horses in the State competed in the running races for the half-mile premiums, while the pacing and trotting was fully up to the standard. This being a great cattle and hog producing county, some as fine stock was shown as could be found any place in the world. The nearness of this district to Chicago makes it an especial object of the farmers to breed only the very best stock.

Newton County has come to the front within the last few years in poultry raising, and our poultry fanciers were on hand with the finest specimens of the different varieties.

The agricultural and horticultural departments were well filled and attracted a great deal of attention from visitors.

The Floral Hall was tastefully and artistically arranged and quite a credit to the ladies who had it in charge.

The people of the surrounding country still keep up their interest in the Fair, and a noticeable improvement has been made in all lines of stock in this country as a direct result of the meetings of this Association. The time has passed when the farmer can allow his stock to roam at will over the prairie and still make a financial success. His attention has now been attracted to finer breeding and better care, consequently higher prices in the market.

Crops were fairly good in this community, and had it not been for the rain that struck us about the opening, which prevented many people from coming to the Fair, would have been a greater financial success. However, every one was satisfied, and the outlook for the future is good.

NOBLE COUNTY.

The thirty-fifth annual exhibition of the Noble County Agricultural Society was held on the new grounds of the Association, adjacent to the town of Ligonier, September 16 to 19. The date was somewhat earlier than usual, but the magnificent display in most departments and the large attendance was sufficient evidence that no mistake had been made as to date.

The horse department commanded the admiration of all lovers of that noble animal. The exhibit was extensive, and some of the finest individual animals in the United States were upon the grounds. Clydesdales, English Draft, Normans, Belgian, and the standard bred trotting horse were well represented.

The speed department was full to overflowing. Fifty horses were entered and took part in the races, which were pronounced the best of the season.

Ligonier and vicinity is famous for its fine horses, and no Fair association in the State can boast of a finer exhibition than was made at the Noble County Fair, at Ligonier.

The show of cattle was excellent. Full herds of Shorthorns, Jerseys, Holsteins, Herefords, Aberdeen, Angus and Gallaways were exhibited. These herds contained some of the finest animals in the State.

The exhibition of sheep was superior in quantity and quality of animals to that shown at any previous Fair held by this Association.

Hogs were moderately well represented, and excellent specimens of the different breeds were shown.

The poultry department was larger and better than ever before.

The display of agricultural products was scarcely up to the standard. The deficiency was due in a large measure to the extremely dry weather, which interfered largely with the proper maturing of corn and all root crops.

The Floral Hall, always beautiful, was never more so than this year. The spacious building was filled to its utmost capacity with beautiful specimens of ladies' handwork. This department was a special feature of the Fair and commanded the admiration of the large crowd of visitors.

The educational exhibit, introduced last year, was continued with gratifying results. The managers feel encouraged by the success of this exhibition, and the Association feel that much good has been accomplished by these annual Fairs, which have, in a measure, been instrumental in the development of farm industries.

The grounds of the Society lie adjoining the town of Ligonier, and contain 35 acres, owned in fee simple by the Association. Commodious buildings for exhibits, excellent barns for stock have been erected, and a fine half-mile race course has been built.

Improvement has been the watchword throughout Noble County, noticeable on every hand. Farmers are raising larger and better crops, better stock, building better houses and better barns, and in fact doing everything better as the years go by.

PARKE COUNTY.

It would be repeating our report of last year to give a detailed account of our Eleventh Annual Fair, the meeting being equally successful as was its predecessor. Our grounds are beautiful, large, well provided with good water, and contain an abundance of shade. The show of horses grows in interest and merit every year, all classes being well represented. The cattle show is light, though the quality is high and consists of local breeders. But in our agricultural department has there been the most marked improvement. Liberal premiums brought out a good exhibit. The Association is harmonious, energetic, and we hope to make some notable improvements in the near future.

PERRY COUNTY.

The Nineteenth Annual Fair of the Perry County Agricultural and Mechanical Association was held on grounds near Rome, from September 29 to October 4. Notwithstanding the inclement weather the Fair was well attended and in every way a success. The exhibitions in some departments greatly surpassed former years, especially the stock department. For the past two years great attention has been paid to this occupation by the farmers, and liberal inducements are being offered by the Association for the progression of stock raising. Having this year completed one of the finest race tracks in Southern Indiana, enlarged the show ring, added several new stalls and remodeled the ground, we feel able to accommodate the stock men in any way they may choose to show their stock.

The Floral Hall was full of the finest fabrics that could be made by women, the entries exceeding the expectations of all. The culinary department was well displayed by the women of this county and counties adjoining.

Perry County is mainly agricultural, containing much river and creek bottom land, which is very productive, yielding large crops of potatoes, corn, hay, wheat, oats and cabbage. The upland is very rugged and picturesque, containing much coal and valuable stone for building purposes, while a great deal of it is used for growing fruits of all kinds. Many fine orchards are being planted of the best quality of fruit.

The farmers seem to be very jubilant this year, not on the account of the enormous crops but the quality and price of produce. Crops of the county this year are very good, with the exception of corn and apples.

Our Association has done much in the way of encouraging and stimulating the farming interest in the community in which it is held.

PIKE COUNTY.

The crops of wheat and corn were about an average for this county, and the farmers have realized fair prices. Such a thing as a failure of either in this county is not remembered by the oldest inhabitant. Oats and potatoes were very poor. The hay crop was good, but the price so low that it will not more than pay for the labor of taking care of it. This is a very poor fruit county, and last year it was almost a total failure.

There has been great improvement in the horses, cattle and hogs in this county, but there is room for more, especially of horses. The prices of cattle and hogs have been so low that farmers have lost money in raising them. There is not the attention given to raising sheep in this county that there should be. In at least one half of the county the farmers could, with profit, raise the "protected animal," as the lands do not produce wheat and corn enough to pay the farmer for his labor and for the use of his farm. It would pay better in pasture. The dog is still held in some parts of the county as more valuable than sheep. As an illustration of this a young man was fined by a jury in our Circuit Court twenty-five dollars for killing a "yaller dog," and this, too, in the year 1890.

The greatest hindrance to the improvement of the farms of this county is the roads. There are no gravel roads, and not likely to be soon, and for about five months in the year it is almost impossible to get about. It seems the people pay taxes enough for road purposes to build gravel roads in every direction.

The farmers of this county are not in good financial condition. A few days ago I examined the records of this county in regard to their indebtedness, and I found that in 1889 the mortgages placed on real estate were 463, and for the sum of \$188,454; that for the year 1890 the number of real estate mortgages was 315, and the amount of the mortgage indebtedness was for \$163,619, and that not one per cent. of the number and amount had been canceled, and that during the last two years mortgages were placed on farms that never had one on before. I also found that the number of mortgages placed on the record in 1869 was 137, and the amount of the same was \$72,600, and that most of the mortgages for 1869 were for purchase money of the real estate, while in the last two years not one in twenty was for purchase money, and now a large number of the best farmers are trying to borrow money on as good lands as there are in the State. If the secretaries of other Societies will take the trouble to investigate the condition of the farmers they will find the same condition in their counties. This is true, I am sure, in the southern part of the State. It seems to me there is something wrong somewhere, and one of the first duties of the Legislature is to reduce interest on the use of money to six per cent. This being an agricultural county, the farm lands pay about three-fourths of all the State and local taxes, and it will be noticed that the rate of taxation for local purposes has increased in all of the counties in the State thirty per cent. over ten or twelve years ago. In this county it is more than that, and nothing to show for it. There seems to be a feeling among certain classes that they should be supported by the county. If the reports of the Auditors of the counties in the State are examined it will be found that the expenditures for

paupers and poor have almost doubled in the last five years. Some officers make reports to the State Board that are very nice, and make every one believe that the farmers of their counties are in good condition, but I propose to give nothing but the truth.

Every man living in Pike County to-day who is in easy circumstances either made it here or his father before him did, as we never had any one come into this county and bring any money with them. They all came poor and have held their own remarkably well.

There are several coal mines in this county, and a large amount of coal is mined annually, but all the operators who employ many men live in other counties and are no advantage to us, but in fact a great disadvantage. The operators furnish all the supplies to their miners and pay them no money for their work.

PORTER COUNTY.

The Porter County Annual Fair of 1890 was, in number of entries, the largest yet held. There also was one day of the Fair the greatest number in attendance of any previous one. But we had one day of rain and only one pleasant one, consequently the total gate receipts were not as large as at some previous Fairs, but sufficient to pay all premiums and some four hundred dollars on improvements. The outcome was satisfactory.

Crops on well cultivated farms were fair to good, both in quantity and quality, with the exception of potatoes.

PULASKI COUNTY.

The year 1890 has been an exceptional one with us as regard crops. Our wheat crop was never better, grain being of fine quality and the yield better than for years. A good yield and fine quality of hay. The oats crop was not quite up to the average in parts of the county. Rye was good. The wet weather in the early spring put corn planting and plowing back, but favorable weather following, our corn developed and the yield has been good and the crop taken care of in good shape.

Our Fair this fall was pronounced one of the best we have ever held. Our grounds were not in first-class condition to start with, there having been no Fair held by the Association since 1885, consequently a large amount of work was necessary in the way of repairs; everything put in good shape. We had a large number of good horses and the best exhibit of cattle we have ever had, Shorthorns, Herefords and Polled Angus, with a number of fine Jerseys. A fine lot of sheep. While the number of hogs was not large they were a fine lot. The speed ring was well filled. In fact the Fair was a success, but would, no doubt, have been far better but for the fact we had very bad weather two days.

PUTNAM COUNTY.

The Second Annual Fair, held at the beautiful grounds one-half mile west of Bainbridge, was a gratifying success. It far excelled, in size, attractiveness of exhibition and attendance, anything of the kind ever held in the county.

The united influences of our well-conducted first meeting, the increase of premiums, new improvements by way of new Floral Hall, nearly one hundred new stalls, and other evidences of the liberal management of the Board of Directors, together with fair weather, combined to make the attendance all that was expected.

The number of entries was large, varied and abundant, and what made exhibitors happy was the prompt payment of premiums in full. As a natural result, both management and the public are happy and speaking favorably of our Fair, which will contribute in no small degree toward future success.

Besides the regular exhibits there was much to entertain the crowd. During the afternoon each day the principal attractions were the races, which were contested for by some of the fleetest horses of the country. Our race-course is such as to attract the very best horses on the turf, it being the regulation one-half mile track, good, easy turns, and pronounced by all who have driven it second to no half-mile track in the State.

The new Floral Hall was full to repletion in every department, which speaks well for the ladies in charge.

The condition of agriculture is surely already on the up-grade, one of the results already noticeable as an outgrowth of our Fair. Especially is this true in the line of road horses. The wheat crop was of poor quality and a light yield, owing to freezes in the early spring which nearly killed it all. But the prospect at this writing for an abundant crop the coming season was never better. About the usual acreage was sown, and the September rains and continued warm weather throughout the fall caused such a growth as is not often seen in the early part of the month of May. Corn was generally of good quality, but cut short, especially in the southern half of the county, by lack of rain at crisis in July, which the northern tier of townships had, and thereby securing for them a bountiful yield and of prime product. A bountiful crop of hay, both of timothy and clover, was harvested in the best of weather imaginable.

Our soil is well adapted to general farming, as all crops of this climate do well with us, while as the "blue grass" county we are still in the first rank.

RANDOLPH COUNTY.

The Randolph County Union Agricultural Association held its First Annual Fair at Winchester September 16 to 19. The attendance was fully up to expectations; except on the last day, when it rained during the forenoon. The receipts were sufficient to pay all expenses and premiums in full; also, \$300 expended on permanent improvements.

The exhibits in the Live Stock Departments were fine, and, with few exceptions, unusually large.

The show of horses was large and very fine, many being full-blood imported animals, notably the Morgan, French and German Coach, Belgian, Clydesdale and Englishshire.

In the Cattle Department were shown fine herds of Holstein-Freisian, Jerseys, Shorthorn and Polled Durham.

The exhibit of hogs was small, but of excellent quality.

The exhibit of sheep was large and of superior quality, containing several full-blood imported show animals.

The Poultry Department was a fine show. The entries were numerous, the varieties consisting of almost every kind known to the American standard.

The display in the Floral Hall was fine, and reflected credit upon the ladies under whose supervision it was operated. In this, as in the Poultry Department, the single expert judge system was adopted, with satisfactory results.

The Mechanical Department was well filled with various kinds of machines in motion, free power being furnished by the Association.

The display of vegetables and fruit was meagre. The present year was all but encouraging to farmers of this county. Timothy and clover hay were the only good average crops. Wheat, oats and flax were far short of an average, both in quantity and quality. By reason of the long continued drouth the corn and potato crops were almost a total failure. Berries and small fruits were below an average yield, while apples, pears and other fruit were next to a complete failure.

The market price for the various kinds of live stock is quite low, aggravated by increased State and county taxes, together with special taxes on a large part of the real estate for the construction and maintenance of public ditches, the construction of free gravel roads and the purchase and conversion of toll into free gravel roads. Fortunately, however, the bulk of these special demands have been met.

Great improvements have been made during recent years; substantial and commodious buildings have supplanted the cabin and cheaper class of buildings; plank or slat, and wire fences have taken the place of rail fences. Our low lands have been thoroughly drained by public ditches, constructed under our present ditch laws. We now have 224 miles of free gravel roads and only five miles of toll roads. Our streams are spanned by fifty-seven iron and combination bridges at an aggregate cost of over \$100,000. A \$25,000 soldiers and sailors monument, 65 feet high by 27 feet square at base, is now in course of building on the public square.

Natural gas is found in the central and western parts of the county.

This being an agricultural county, the one thing necessary to make us prosperous and happy is the production of good average crops.

RUSH COUNTY.

Notwithstanding the fact that the Rushville Fair experienced four days of rain, the exhibition surpassed any of late years in the extent and quality of display in all departments. The Society was unable to make the receipts meet the expenses in full, but are gratified that they have maintained their reputation of paying 100 cents on each dollar of indebtedness.

The crops in Rush County for 1890 were, in most cases, short of the average in both yield and quality. Corn is estimated at one-half crop, with wheat about one-quarter yield and of very poor quality. Oats was an average crop and quality good. Timothy hay, the most abundant crop for some years and was harvested in good condition. Clover seed, a good yield and grades well. Fruit almost a failure. The horse interests have been on the increase for many years, but the developments of 1890 surpassed all former years. With the Fair and Trotting Association three speed meetings were held during the year with most satisfactory results, and the sales of horses has been one of the great sources of income of the county.

The county has marketed its usual number of cattle during the year, but the industry will suffer if better prices are not obtained. The cholera has played sad havoc with the hogs, and but for the high-bred class of hogs which are raised to a great extent by the stock raisers of the county, the crop of 1890 would be very far short of the average.

Many additions to the sheep industry have made Rush County rank among the first counties of the State in this branch of stock interests.

A very large acreage of wheat is sown, and at this date promises to yield abundantly.

SPENCER COUNTY.

The Spencer County Fair Association at Rockport, Ind., held its fourth annual exhibition September 22 to 27. Notwithstanding the fact that it rained all the week, the exhibits were unusually good in all departments and the receipts ample to pay premiums and running expenses, with a wholesome balance left in the hands of our treasurer.

Since the organization of our Society there has been a marked increase in interest in live stock, agriculture, horticulture and especially in domestic skill in textile fabrics, fine arts and culinary products.

We had a fair crop of wheat, a good yield of corn and tobacco, and an abundant crop of potatoes, the latter bringing into our county not less than \$100,000.

Another Report.—The Spencer County Agricultural and Industrial Society held its fifth annual Fair on its grounds at Chrisney, September 29 to October 4. The first three days were very rainy. Many of our exhibits were cut short and the sale of tickets decreased on account of the bad weather. The agricultural aspect of the county for the year has been moderately good. Wheat, medium crop. Oats were a failure. Late potatoes were an abundant crop. Corn below the average on account of late wet spring. Tobacco was also a short crop. There is a growing tendency to raise less and less every year. We have just held a successful Farmers' Institute, which can not help but stimulate farmers to better methods of tillage.

Stock raising is advancing slowly, with the horsemen in the lead. We have several herds of the better breeds of cattle in the county, but cattle raising does not seem to interest the farmers as much as the raising of horses and mules.

STEUBEN COUNTY.

The Steuben County Agricultural Association held its Fifteenth Annual Fair September 23 to 26. The weather was rather unpropitious at the opening, but Thursday morning was very fine and the crowds came until it seemed that there was room for no more people or teams. The attendance on this day was greater than any other single day in the history of the Society. But before night rain began to fall, continuing through the night and long enough on Friday to limit the attendance on that day to a small number. Yet with only one good day we have paid off all liabilities, leaving a balance sufficient for needed repairs.

The entries were in excess of any previous Fair. The exhibit in live stock was especially fine, except in swine. The ravages of cholera in 1889 so depleted the stock of swine that many breeders had no stock fit for exhibition. Others fearing contagion could not be induced to bring their stock out.

The crops of the past year have not afforded great encouragement to the farmer. The yield of hay and oats was above the average. Corn, our most important crop, was not more than half the average. Wheat a light crop, but of fairly good quality. The apple crop (a very important one with us) was nearer a total failure than ever before. Yet with some products the scarcity in yield has been compensated by the enhanced price.

With all these discouragements the condition of agriculture in the county is surely improving. Better methods of farming are prevailing and the day is not far distant when, through added acreage and more intelligent work, the aggregate productions of the county will be greatly increased if not doubled.

SULLIVAN COUNTY.

The Sullivan County Agricultural Society held its Annual Fair at Sullivan September 8 to 15. The Fair should have ended on the 13th, but owing to the rainy weather the fore part of the week we held over on Monday, the 15th, which helped the Society in a financial way considerably, as Monday was our best day.

We had a big display of everything that goes to make an agricultural fair a success. As regards the crops in the county, corn was about one-half crop, as was also wheat, and oats almost a failure, as there was a small green bug which worked on the crop while growing. Taking the crops and weather into consideration, our Fair was a success.

TIPTON COUNTY.

The outlook, or rather the agricultural prospect, of our county may be deemed flattering. There is a large acreage of wheat sown, which at present looks remarkably well; also, about the usual crop of rye, which looks promising. The corn crop the past year, from the information I have obtained, was about two-thirds of a crop; that is, two-thirds the usual yield per acre, but the quality A No. 1. Oats and rye, hardly up to the average. But the whole at prices corresponding to the

short crop. Our acreage for cultivation is continually increasing, as a result of the universal system of drainage which has been adopted by the progressive farmers of our county, and enforced through the courts for the benefit of all.

Our farmers vie with each other in the quality and breed of all kinds of stock, and the stock of Tipton County will compare favorably with that of any county in the State. In fact the agricultural prospects of our county are flattering, also, in a financial way, and as year after year passes our farmers are steadily reducing the amount of indebtedness contracted in improving their farms.

I regret that I am not able to give you a detailed report. Promise better in the future.

TIPPECANOE COUNTY.

We expect to hold our 25th Annual Fair next year. The wheat crop of this county in 1890 was very light. An average acreage has been sown this fall, and the condition of the growing wheat is unusually fine and promising. Oats crop was very light, but price paid was good, 37 to 40 cents. Corn crop is unusually large, running 50 to 100 bushels per acre. Price paid is from 47 to 50 cents per bushel, ear corn.

VIGO COUNTY.

The Vigo County Fair for 1890 was a great and successful exhibition, surpassing all preceding years in gate receipts, entry fees and exhibits. All departments, all stables, barns, pens and coops were filled, single expert judges were employed in the live stock departments with satisfactory results to both exhibitors and the Society.

An important feature of this Fair was the combination of the annual meeting of the Indiana Trotting and Pacing Horse Breeders' Association with our own. The necessity of advertising extensively the stake and other races to promote the interests of the Trotting and Pacing Horse Breeders' Association, in addition to our usual free use of printers' ink, gave great prominence to the speed ring and especially to the Breeders' races. Nine out of fourteen races were stake races.

The large gathering of finely-bred colts and fillies was certainly neither the least interesting or valuable incident of the Fair. The stakes and money added by this Society made \$2,900 for division among the winners.

It must be admitted that the public, which contributes the gate-money, takes great interest in the races and special attractions of Fairs. During the afternoons, while the races and attractions were in progress, a dense crowd filled the amphitheatre and lined the fences along the track until the last heat was finished. At the same time the halls were constantly filled with sight-seers.

It will be profitable to treat the exhibits in the halls, especially all lines of women's work and art, as attractions, to be so arranged and advertised, and to arrange the premium list with a view to securing interesting exhibits and to develop excitement in various lines of entries.

The satisfactory close of our best Fair was followed by a fire, which burned all the cattle barns and many of the stalls, valued at \$6,000, but fairly insured. The stables have been already replaced by finer buildings. A pretty dwelling has been built for the keeper of the grounds, and during this year the barns will be rebuilt. A great amphitheatre to seat 5,000 people will replace the present building, of 1,800 capacity, before the next Fair.

The year 1890 was not one of much prosperity to the farmers of Vigo County, who suffered from the effects of a spring freeze, summer drought and insect ravages.

A large acreage of wheat, equal to, or more than an average, was sowed, but there was a severe freeze in March and at least 25 per cent. of wheat was plowed up and other grain planted. From this and the deterioration of the wheat grown, the yield fell to 65 per cent. Wheat marketed early was inferior and largely mixed with cheat, often as much as ten pounds to the bushel; later in season the quality graded No. 2. The mills of Terre Haute consume about 2,000,000 bushels annually, to which this county can contribute only a fraction. The millers report buying increased amounts of Poole wheat, which they consider good; some of Hicks' wheat, which is not so good, as it makes a yellow flour. There were small offerings of Fulcaster wheat, grown in Sullivan County principally; it is a good milling wheat and one of the millers has distributed a car load for seed.

The much-tried farmers were next caught by the drought and were able to secure only about a two-third crop of corn of fair quality. The enormous consumption of corn by the Terre Haute distillery, which is the largest in the United States, and by the hominy mills, which include the most extensive in the country, makes this point a great market for mixed and white corn. It is probable that two-thirds of the corn acreage of the county is devoted to white hominy corn.

An increased acreage of oats was sown, but the crop was a failure, principally due to the ravages of the *green Aphis*.

The hay crop was of fine quality and one of the largest for several years.

Irish potatoes shared in the general failure and may be set down as a one-fifth crop. There was a much better yield of sweet potatoes, for which this county is noted.

Fruit showed a very poor result. The small fruits did fairly well. Grapes are cultivated to a small extent. There are a few cultivators of the grape for wine-making. One grower ships very superior wine. He cultivates successfully a white African grape of his own importation.

Vigo County is especially adapted to market-gardening. The shipments to other markets, especially Chicago, are very large. "Terre Haute" melons, tomatoes and other garden produce in this county have an established reputation which has made this county, for the present, the best garden-market in the State.

The live-stock interests of the county are somewhat depressed. There are but few breeders of fine cattle, but an increase is noticed. There is a gradual increase of capital invested in horses, and a great development in the light-harness interest. The establishment here of important breeding-farms has led already to great results, which are secure and only the forerunners of a vast business.

The report on roads for this county is not one to boast of. We have 1,400 miles of roads, of which not over 100 miles are graveled.

Very persistent efforts and a steady, judicious expenditure of money have been made to tap that supply of oil and gas which benefits so many Indiana counties. Two profitable oil wells are flowing in Terre Haute and wells are still being drilled in search of other veins. The necessity of keeping up with the procession, gas or no gas, has led to the establishment in this county of a very successful system for the manufacture of fuel-gas, which is sold to small consumers at 35 cents a thousand feet. The ordinary illuminating gas is also supplied at 35 cents, a rate which is below that of any point in the country.

This county has entered heartily into the very judicious and beneficent Institute work, conducted under the auspices of Purdue University, and it hopes to maintain the interest hereafter.

WABASH COUNTY.

Our Thirty-eighth Annual Fair began September 23 and closed Saturday, September 27. Notwithstanding the unpropitious weather, the attendance was larger than at any time in the history of the Society. All departments were filled, and the display was very fine.

The greatest interest was shown by our farmers in sheep and hogs, and a finer collection of both would be hard to find, even in the oldest counties of the State. Our 450 horse and cattle stalls were all filled. The show of draft and driving horses surpassed that of any of our previous Fairs. Fine herds of dairy cattle, consisting of Jerseys, Holsteins and Herefords, were on exhibition. Also, beef cattle, consisting of Shorthorns and Polled Angus. The Speed Department was well represented. All races were filled, and all horses driven to win.

The interest manifested in the success of our Society was apparent on every hand, and we therefore conclude that the Fair of 1891 will surpass all others.

All premiums were paid in full, and a balance left in the hands of the treasurer.

WARREN COUNTY.

The financial report shows the Association in debt about two hundred dollars, which was principally caused by making some necessary repairs on the buildings and premises. The Fair passed off quite nicely, except Wednesday and Thursday it rained, causing a much smaller attendance than would otherwise have been. The show this year was good in all departments, especially good in the horse and swine departments. In those classes it was the best we have ever shown, taking the grade and number of entries both in consideration. The showing in the other classes was good, and in fact the whole show was splendid. The Association spent quite a good deal of time and money this year in improving their already beautiful grounds, and have them in first-class condition.

The attendance was very good, considering the unpleasant weather; about the usual number were in attendance as it was. The crops were fair and early harvested, and everybody seems satisfied.

WARRICK COUNTY.

The Thirty-second Annual Fair of the Agricultural Association was held at the Fair Grounds, at Boonville, October 6 to 11. The weather was all that could be asked for.

The attendance was beyond expectation; the exhibit in all classes better than for several years before. A greater per cent. of standard bred stock was exhibited than ever before.

All premiums were paid in full, with a handsome profit left in the treasury. No gambling, no liquor privileges, which alone insured success.

Warrick is one of the leading agricultural counties in the State. The coal fields are inexhaustible, and beds of fire-clay have been discovered 4½ feet thick.

The interest manifested among stock men prove the Agricultural Association to be the vital organ which breathes the breath of life into the breeding interests of the county.

Most crops hardly an average. Wheat and potatoes good. The use of commercial fertilizers is rapidly increasing, the fruits of which are many fold.

The Society is established on a firm financial basis, and every indication for 1891 flattering.

WASHINGTON COUNTY.

The Washington County Fair Association held its Second Annual Fair the first week in September, 1890. The grounds are less than one-half mile from Salem, and naturally adapted to the purpose, having ample shade and water.

The entries in every department were entirely satisfactory. The Association has excellent buildings, including, besides a very large Agricultural Hall, offices for the Treasurer and Secretary, a large boarding house, numerous pens and sheds for stock, besides over two hundred stalls for horses. The Fair just closed surpassed all former exhibitions in display, attendance and receipts.

In the Horse Department nearly all the improved breeds were represented, and far surpassed any previous display in this county.

The show of cattle was especially fine, comprising Alderneys, Jerseys, Short-horns, Herefords, etc., the specimens of each breed being animals of merit.

The display of sheep was better than heretofore, the long and middle wools being well represented.

The swine exhibition was ahead of former years, the larger breeds leading in numbers.

The poultry show was "simply enormous," there being over two hundred entries, all the standard varieties being on exhibition. It required a shed 100x30 feet to accommodate this department. It was one of the centers of attraction, and the premiums, which were large, were hotly contested. This department was entirely the product of our own county. Many of the coops were subsequently sent to the State Fair, and invariably captured the ribbons.

On account of the dry weather many of the agricultural products were not as large and fine as in former years, yet the large hall was well stored with meritorious specimens.

Of machinery, implements, tools, vehicles and mechanics' work of all kinds, there was an unusual abundance of the very best.

Too much can not be said of the Ladies' Department. The culinary preparations and needle and fancy work excelled all other departments, and the contest for premiums "waxed warm."

The Speed Department was no "set-up" affair and was satisfactory, being hotly contested. Offering, as we do, large premiums, brings good horses from adjoining counties and States, and all left well pleased with the treatment they received, signifying their intention to return next year.

The Association excludes all games of chance of every character.

All our improvements are of a permanent character, and we claim to have one of the best improved and most beautiful Fair grounds in the State.

Our farmers are alive to improvement, and well up with the spirit of the times. Stock raising is attracting their attention, and a specialty is made in improvement. What we need at this time is another railroad from the north and northeast. We have as fine stone as there is in the State—the quarry is less than one mile from Salem. Many thousands of dollars are invested, and over 200 men kept constantly employed. We enter upon the year 1891 with increased hopes, believing they will be realized.

WAYNE COUNTY.

Our meetings are held on the second Saturday of each month, usually at the residence of members or friends of the Society. Those occurring during the winter months are held in the Richmond City Building, those of spring and fall, at city residences, while those of summer are out-door, all-day meetings, where larger tables are prepared for the display of the fruits of the orchard and garden, and for spreading the dinners or suppers, which are publicly partaken of and enjoyed by not only members, but friends and visitors of the Society.

The displays made at our meetings have been numerous, interesting and creditable; consisting of various agricultural and horticultural products, and shown in their season, being usually the choicest specimens grown by the exhibitor; also, a number of miscellaneous articles have been placed on our tables during the year.

At the September and November meetings premiums were given respectively for exhibits of grapes and chrysanthemums being grown and exhibited chiefly by members of the Society.

It was our intention to have taken part in the Wayne County Fair this season, but buildings were not completed in time to make displays of our products, and the project was abandoned.

For several years the United States Agricultural Department has been sending us seeds of various kinds, which have been placed in the hands of committees for

distribution, and to collect data relative to results of testing the same. These reports are given when opportunity permits. Some very promising varieties have been grown and are distributed among the members generally.

As heretofore, essayists have given us excellent addresses, treating chiefly some rural subject, analyzing to a great degree the attributes pertaining to successful individual labor in agricultural or horticultural fields.

We have suffered a loss during the past year by deaths and removals of some of our most active members, yet there is to be found in our midst practical farmers, good gardeners, successful fruit growers and lovers of flowers, and the members of the respective standing committees are chosen in accordance with the pursuits and inclinations of the individuals.

ORNITHOLOGY.

The migratory movements during the past year of the greater part of our North American species of birds common to this district have been relatively the same. From observations there seems to be a remarkable increase in the number of English sparrows, and a slight one in favor of the crow, while there is an apparent decrease in the number of robins, field larks and "red-heads."

Our attention has been called to the destruction of some of our finer foliated species by urchins, who, it is believed, sell them to milliners. Too many nests are robbed under the pretense or craze to secure a collection of birds' eggs, by boys and young men, who scour thicket, field and grove in search of these "hidden treasures." More effective laws should be enacted to obviate these evils, and our homes would be made more cheerful by their songs, and our baskets better filled from their efforts in checking the ravages of destructive insect pests.

ENTOMOLOGY.

The entomologist is aware of the progress made in this branch of science by co-workers throughout our commonwealth. Insects both new and interesting are being profitably studied, while new discoveries of economic value are being made with longer known and more closely studied species.

The rose-worm and slug continue to annoy the florist; the cabbage and onion worms, and the potato and cucumber beetles worry the gardener; the currant worm, codling moth, curculio and strawberry saw-fly claim much of the fruit-grower's time; while the cut, grub and boll worms destroy the farmer's grain, and the ox-warble and bot-flies harass his stock.

Experiments with spraying fruit trees have been conducted by some of our members with good results, and will undoubtedly be more generally used hereafter. Applications of different substances to check the ravages of other insects have also been made with unsatisfactory results. A more general fight on insect life will be necessary, avoiding, however, any debris that may be used by them in which to breed or hibernate.

FRUIT.

Apples.—It can not be said we were blessed this year in basket and in store. The fruits of the orchard were few and of a second grade, as the insects that prey on these fruits have their share regardless of that of the grower. The promise for an abundant crop was good early last spring, but at the time when warm and dry winds were needed, a destructive storm of wind and rain from the northeast beat the bloom to the ground; this, followed by several severe frosts, virtually destroyed all hopes for a fruit crop on early blooming varieties. The Haglo being a later bloomer, escaped with half a crop. It is possible that fruit trees in sheltered locations, and where insects were kept in check, fared better, but this county did not produce ten per cent. of a full crop the past year. Good salable fruit ranging from \$1 to \$1.50 per bushel.

Fruit growers had a fine opportunity during last summer's drouth to apply manure to their orchards, the early fall rains following disseminating the manure through the soil, better enabling the trees to mature a larger crop of fruit next year, which we trust will meet our expectation.

Pears.—The pear yield the past year was but half a crop, yet far more abundant than the apple. The later blooming varieties suffered less, hence the most prolific.

Plums and Cherries.—These fruits have been an uncertain crop, due to the rot and the destructive pest, curculio. The blue varieties of plums and early May cherries seem to be the most successfully grown.

Berries.—Berries generally were not very plentiful and of medium size, owing to the severe drouth. Strawberries were about three-fourths of a crop.

Grapes.—The only full crop of any of our varieties of fruit. Every vine was more or less laden with fine, luscious fruit. The grape rot became alarmingly prevalent in the summer, but our fears were allayed as it gradually disappeared, until we were rejoiced to see such perfect bunches.

At our September grape Fair, our tables were laden with as fine, large and choice bunches of grapes as ever decked those of any Fair in Eastern Indiana, and is said to have surpassed our State Fair's exhibit. The total number of plates was 119, many of which contained no less than six bunches. The variations in color, size and beauty of so many varieties produced a pleasing effect, which was heightened by being permitted to partake of such luscious fruit after the awards were given. Among the varieties exhibited the Niagara, grown by Joseph M. Baylies, was the finest, receiving first premium. Hiram Sulzer exhibited the largest number of varieties, being twenty-four, of his own growing. Others, however, exhibited as many as fourteen, sixteen and twenty varieties.

An unusually warm and open winter caused the spring flowers to bloom much earlier than usual. Tulip, hyacinth, crocuses and other early flowers were fine, but shrubs and lawn plants were so far advanced that a freeze in March materially injured the beauty of their bloom.

The spring months were cold and rainy, which was unfavorable to the seed sown in the open ground and to the growth of plants. The summer months were

hot and dry, hence our supply of summer flowers was not abundant. Timely rains brought forward the autumn flowers, until they were the finest of the year.

The frost fell late, and chrysanthemums, China asters and dahlias were exceptionally fine, while geraniums, begonias and many summer flowers revived and bloomed under the influence of sunshine and rain.

Of the flower seeds received from the Agricultural Department, 70 packages were distributed among members of the Society. Reports show that the seed germinated well, but the drouth in many instances was unfavorable to full development. Some reports were quite flattering, notably those of pinks, pansies and mignonette.

AGRICULTURAL.

The past season has not been a prosperous one for the agriculturist. His barns and storehouses are but poorly filled with farm products other than hay. This crop was an abundant one, the grass having been preserved in fine condition. For several years past grain and milling have not been so high priced, so the stockman must feed judiciously, using as far as possible hay and fodder.

The uncommonly open winter, followed by a severe March, resulted in a poor wheat crop. The severe dry summer cut our corn and oat crops to less than half, besides seriously injuring our pastures. The early fall rains resuscitating the grass, stock will, after all, go into winter quarters in fair condition.

Clover seed sown last spring stood the drouth generally, and is now flourishing. Wheat is doing splendidly, but earlier sown fields are making a ranker growth than is desirable.

Live stock in general is doing fairly, but with scarcity of grain and low-priced stock, the farmer is placed in a dilemma. But he has been compelled to believe that while during the past few years his financial wealth has been but slightly augmented, he has added greatly to his storehouse of knowledge, better enabling him to contend with opposing forces in the future.

VEGETABLES.

The vegetable crop the past season was a light one, due principally to the backward spring and the dry summer. The Irish potato crop was relatively a failure, while sweet potatoes were excellent; both, however, commanding good prices. Turnips and late cabbages were fine. Beets, radishes and onions did reasonably well. Tomatoes did poorly, ripening too late. Seeds generally germinated well, but the drouth during the summer months seriously affected their proper development, and a very small amount of typical specimens were obtained. Market gardeners experienced no difficulty in disposing of their products, and at fair prices.

WAYNE COUNTY.

The Wayne County Fair Association held its First Annual Fair on grounds adjoining Hagerstown, August 19 to 23.

Though a heavy rain fell Thursday, the weather was favorable on other days, and the aggregate attendance was far beyond what was expected. Though, strictly speaking, this is the first county Fair for Wayne in years, a lively interest was manifested in every department, and the exhibits in point of merit, variety and numbers elicited much favorable comment. The grounds, comprising fifty acres of sparse woodland of the most desirable character for the purpose, border on the corporate limits of Hagerstown, and within four minutes walk of the business portion of the town. A fine stream of water touches the western border the entire length of the grounds, while several fine springs are to be found in the eastern portion.

The buildings consist of a fine stock barn, an amphitheatre, commodious and of modern build; a floral hall, vegetable hall, and two hundred and twenty-five stalls, all shingle roof.

No finer race course could be found than these grounds afford. It is specially fenced for the safety of drivers, its soil can not be excelled, is built in strict accordance with association rules, and is a half mile to the inch. These excellent appointments, with the special accommodations extended by the Pan-Handle and Big Four Railroads, contributed to the pronounced success of our first Fair.

The exhibits in every branch of the live stock department were fine. The floral hall was not nearly large enough to accommodate the large display, which was extremely beautiful and came from all parts of the State.

The display in the vegetable department was only fair, the specimens, owing to dry weather, not being fine.

The speed program was excellent, and the pace in 2:20 and the trot in 2:25 speak volumes for a track built less than six months previous.

The past year has not been a very satisfactory one in agricultural pursuits. Wheat, which had a fine start, was greatly injured by the late freezing and made but half the usual crop. Many acres were plowed up.

The season throughout was a bad one for corn, and the yield was not to exceed half a crop. Spring was unseasonable and wet, the grub-worm played havoc, and later the drouth almost destroyed the crop. The low lands produced fairly, but much of the corn is of inferior quality.

The oat crop was light.

Barley is little raised in this county, but the little sown produced fairly well.

The potato yield, usually large here, was light, as a result of the long-continued dry weather.

Stock raising, always receiving great attention here, is growing as an industry. It seems to be an ambition to secure good breeds in sheep and cattle especially. The low prices of cattle have not as yet affected the interest shown in this branch of stock raising. Many hogs have died of cholera. Some estimate that forty per cent. died during the season from this scourge.

Manufacturing interests are in a healthy condition generally.

Natural gas has been prospected for in every part of the county. It has been found only at Hagerstown, where the wells produce a fine quality of gas for both light and fuel in paying quantities.

ARCADIA DISTRICT.

Our Association held its Fifth Annual Fair August 25 to 29. We had fair weather after the second day, but some of the departments were not as well filled as they should have been. The horse department was good, and the display of poultry was also fine.

If some of our farmers would take as much interest in the Fair as some of our enterprising ladies, I am sure all departments would be well filled. We offered some special attractions, which were enjoyed by those who were present.

This is a splendid agricultural district, but in some localities wheat was almost a failure. The corn crop in this vicinity was greatly damaged by drought. Hay is above an average, and put up in good condition. Oats below an average. The acreage of wheat sown is greater, I think, than for 1889.

There seems to be a disposition among the better class of farmers for the improvement of their farms and stock. We know of no other locality in the State where the farms have more substantial buildings, and a great many of our farmers are enjoying the luxury of natural gas.

BREMEN DISTRICT.

The Bremen Agricultural Society held its Second Annual Fair on its commodious grounds, one-half mile south of Bremen, September 30 to October 3. The weather during Fair week was pleasant, and, as a result, we had a very large attendance and a splendid line of exhibits.

The Society's grounds contain twenty acres, and in addition a grove is leased for five years. The Fair buildings are commodious, and especially designed to display the exhibits to the very best advantage. They consist of a Floral Hall sixty by sixty feet, Agricultural Hall twenty by sixty feet, Poultry Hall twenty by forty feet, and Amphitheatre twenty-six by seventy feet, with basement, all of which are substantially built and arranged conveniently as to location, and artistic in design. The stall capacity, two hundred animals, will be enlarged in the future.

The exhibits in all departments, except poultry, were good, and exceeded the most sanguine expectations of the Society. As this is our second Fair only, yet the good effects thereof are already being made apparent. Many farmers are beginning to improve their stock, and pay more attention to the breeding of thoroughbreds than before the organization of the Fair. This improvement is especially the case with cattle and hogs. Of the former, Shorthorns and Jerseys are mostly in favor, while the Berkshire and Poland China take the lead among the latter.

Considering the severe drouth during July and August, the display of farm products was fine, most conspicuous of which being wheat; no less than eleven varieties being represented, and which tested from $61\frac{1}{4}$ to $63\frac{3}{4}$ pounds per bushel. The several classes in the Ladies' Department were well filled, and many were the encomiums offered by visitors, both as regards the designs and tasteful arrangements of the various articles in the Hall. The Society owes its past success largely to the interest taken by the ladies of this community, and trusts that they will continue their good work in the future.

The one-half mile track is in excellent condition, and the races, including running, trotting and pacing, were exceptionally good and were appreciated by all who witnessed them.

The Society membership is eighty-three, with a subscribed and paid up capital of \$5,000, no indebtedness and encouraging prospects for the future.

Our citizens are alive to the benefits accruing to them from a well regulated Fair and are giving their willing support, which the management so justly deserves.

This part of the country is undulating, and is drained, either by the St. Joseph into Lake Michigan or by the Yellow River into the Kankakee. The soil north and east is either sandy or a black loam, while on the west we border on the great Kankakee Marsh; in the last named the soil is either of a murky or marshy nature, and this, by proper drainage, can be converted into the best stock farms; large ditches are now under contract, and when completed will drain the water into Yellow River, giving outlet for collateral drainage and thus converting a seeming waste into a veritable Eden.

The public highways are not what they could be, but the demand of the people is that they be graveled, and as the term of office of Township Trustee is longer than formerly, giving them an opportunity to work more advantageously, a vast improvement is expected in this direction. The main obstacle in the way to gravel the roads, is the scarcity of good gravel, which, in some instances, must be drawn six miles.

The crops in northeastern Marshall and adjoining counties were well up to the average; wheat, especially, was good, both in quality and quantity, averaging about 18 bushels per acre; hay, both clover and timothy, was good, and yielded two tons per acre; on account of the severe drouth during July and August, corn, oats and potatoes were a partial failure; the first two averaging about 22 bushels per acre, while potatoes yielded 50 bushels per acre; clover seed was fair and yielded two bushels per acre, but with decreased acreage; much intended for seed had to be pastured on account of the drouth; fruit, excepting cherries and strawberries, was an entire failure. Farmers are paying more attention the last few years than formerly, to dairy farming, principally to making of cream and selling the same to the creameries; poultry raising receives some attention, yet this industry is in its infancy and needs encouragement.

Considerable interest is manifested in the coming "Farmers' Institute," and, if properly conducted, will bring rich results to the community.

BRIDGETON UNION.

The Society held its Twenty-ninth Annual Fair at Bridgeton, from August 11 to 16. The Fair was quite an improvement on any of the previous Fairs for some years. Through the liberality of the patrons of the Society, the managers have been enabled to build all of their stalls new and one large barn for the accommodation of stock. They have made a regulation time track as good as any half-mile track in Western Indiana. Our grounds are enlarged till we have ample room to accommodate all visitors and exhibitors. The show in all the stock classes was very good, notably so in horses, probably the finest display of general purpose and light harness horses that were ever on the grounds, light harness leading. There has been a marked change in the last few years; heavy draft is now third, where a few years ago they were far in the lead. We have some very fine roadsters in the bounds of the district. Cattle department not as full as it ought to have been. Good representations of the Shorthorn breed.

One reason for the small show of cattle at our Fair is the distance of our grounds from any railroad. We have a prospect of one railroad, if not two, by the time of our next Fair; the grading for one, at the time of this writing, is nearly all done from Carlon, a point on one of the lines on the Big 4 to Bridgeton, to run to Bainbridge, the other the Midland. The hog and sheep departments were well represented, also the poultry department. Fine Art Hall, an advance of fifty per cent. in quality of articles over the previous year. The weather fine and attendance reasonably good. The outlook for the prosperity of the Society is encouraging.

The agricultural interest of the district is improving and keeping up with the times. The crops, with the exception of timothy and clover, not an average. The corn crop, except on bottom land and some favored localities, was light. Wheat in some localities almost a failure. Oats, the nearest a failure for years. Timothy a fair average crop. Clover the same. Fruit crop light, almost a failure, except small fruit.

Manufacturing and mining interests in good, healthy condition, quite a number of new coal mines being opened and developed within the last year, and a large amount of coal lands being tested and changing hands. With a season of good crops and lower taxes, the farmers will be in far better circumstances financially than what they are. There is about the usual acreage of wheat sown and looking well. There is a larger acreage of rye sown this fall than ever before, owing to the failure of the wheat crop for the last two years.

EASTERN INDIANA.

The Eastern Indiana Agricultural Association held its eighth annual exhibition at Kendallville, Indiana, from September 29 to October 3. The weather was favorable and everything passed off in an exceedingly pleasant and agreeable manner. The exhibits in every department were larger and more attractive than on any former occasion, unless possibly in the speed ring, where the entries were not up to the standard desired, though tolerably fair. The entries in the horse

and cattle departments were very fine, indeed, and the exhibit in each attracted large crowds of interested people, who were profuse in their praise and complimentary remarks.

The same is also true of the sheep and swine departments; of poultry the entries were simply immense in point of numbers, and of fine quality. No admirer of the feathered creation could fail to be pleased and entertained. Prior to the exhibition considerable concern had been manifested on the part of the managers, because of the scarcity of some kinds of fruit, and the opinion was quite general that the display in this line would be limited. Just the opposite was the condition, as shown by the exhibits. Never before, since the organization of the Society, was there a better or larger display in fruit or farm products. Every one was surprised and delighted as well.

Admirers of fine arts, needlework and the like had a genuine feast, by passing through Floral Hall, where a "sea of beauty and a world of loveliness" greeted the eye. Exclamations of delight and congratulations for all concerned were heard on every hand. Nothing could have added to the enjoyment of all, unless greater space could have been granted to view the grand exhibit. The ladies, who have always had charge of this department, surpassed any of their former efforts and truly merited the praise so freely accorded them.

Machinery Hall, as usual, was filled to overflowing with machines and implements of every kind, in motion, and an anxious throng of farmers and others watched the busy scene with interest. To accommodate the demand of exhibitors, a large and handsome hall, 40x120 feet, had been constructed for the accommodation of exhibits of carriages, buggies, wagons and fine implements. This, too, was filled to its utmost capacity.

An interesting and popular feature of the Fair was Soldier and Children's day. Wednesday over one thousand ex-soldiers accepted the invitation of the Association and honored the occasion with their presence. Gen. R. A. Alger, of Detroit, Hon. Clem. Studebaker, of South Bend, and other distinguished personages, were present and made short addresses. The day was, indeed, a pleasant one. The Fair was truly a success, financially and otherwise. All premiums and purses were paid in full, and visitors and exhibitors were all pleased, and promised to return in greater numbers and with larger exhibits next year.

Our grounds are undergoing some important changes in the way of grading, and early next year a new amphitheater and other needed buildings will be erected, and everything possible will be done to merit and preserve the confidence and support of the fair-going people in the future.

Concerning the crops for the year, there were several products not up to the desired standard of the average farmer, though perhaps as a whole there was little cause for complaint. Wheat, perhaps an average crop. Oats, a trifle light in yield, but high in price. Corn, only medium in quantity, but the price satisfactory. Hay, good. Potatoes, thin yield, but high price. Apples, very poor in yield and quality, but several *octaves* above the average consumer in price. Peaches and plums scarce, but some of the smaller fruits were very fair in quantity and quality. We are in the midst of a splendid farming country, and when a shortage in any of the crops does occur it is keenly felt.

FAIRMOUNT UNION.

The Fairmount Union Joint Stock Agricultural Association held its seventh annual exhibition September 15 to 19.

The heavy rains during the two or three weeks immediately preceding the opening delayed the farmers with their seeding, and we believe they did not give such general and undivided attention to the attendance and general interest of the Fair as they would have done had seeding and fall work been more nearly completed.

The corn crop was late and short by probably fifty per cent. of an average crop, and the wheat almost an entire failure, owing to its tenderness on account of the warm and open winter, followed by the dry and freezing weather in the early spring, and the potato crop was cut short by dry weather in the later part of the season, and in fact we must confess a general shortage in crops in this district, except perhaps that of hay.

Concerning the Fair more immediately, we have the pleasure of reporting it as being eminently successful in every respect, considering the drawbacks above named. The number of entries was not quite so large in all departments as in former years. However, the horse department was never better. The cattle and hog show was good, and while the domestic art hall was not so full, the show was creditable, and the agricultural hall was well filled and provoked much commendation from visitors.

The exhibit in the light harness class of the horse department was very full and interesting.

The entries in the speed department were larger, and the exhibitions on the track were better than usual. This department proved an attractive feature of our Fair.

The attendance was not so large as was desired, except on Thursday, the 18th, when the grounds were almost full and altogether the attendance was such as to enable the Association to pay all the expenses and premiums in full, as usual, leaving a surplus sufficient to start in on next exhibition full handed.

The present wheat crop is in an average condition for this time of the season in this section of the country.

Our Association is surrounded and supported by a fertile country in the heart of the gas belt, and has endured the series of unfavorable seasons for the last four years, as a country with less fertile soil and fewer natural advantages could not do, and the inhabitants of which would have suffered hunger and poverty under similar conditions.

No hog cholera or distempers affecting stock in this section.

JEFFERSON COUNTY.

The Grange Agricultural Association held its fourteenth annual meeting and exhibition on grounds near Wirt Station, August 19 to 22. This meeting, like the last two annual meetings, was rained out, as it rained almost the entire four days. This being the third season in succession that we have had rain almost the entire

time of our meetings, which worked great injury to the success of our Association financially. Nevertheless, the managers are not discouraged, but will be found in the field the coming season, working with the same zeal and energy that they have in the past.

The exhibits were very good in all departments except the horse department. The farm product display was fine; also, the floral department was much better than for several years past. The display in farm machinery was very good.

Owing to the continuous rain during the meeting the receipts were very light; barely enough to pay the expenses, leaving nothing to pay premiums.

The products of this county are fully up to the average, except oats, potatoes and fruit, which were almost a failure.

The setting of fruit trees is still going on, and the day is not far distant when our orchard products will be very large. There is a very large acreage of wheat sown this year. The early sown looks fine; the late sown does not look so well. All industries in the county are keeping pace with the march of progress.

KNIGHTSTOWN DISTRICT.

The Knightstown District Fair Association held the second Fair under the new management (being the forty-first annual), on their grounds near Knightstown, August 26 to 30. With the exception of the first day, the weather was fine; the exhibits, in point of quality, quantity and variety, were as good as any previous year, and were fully up to all that could be expected by the management. The Fair was a success financially, all premiums being paid in full on the last day of the Fair. The racing was the best ever witnessed here, the time being the fastest ever made on our grounds, and as good as on any half-mile track in Indiana.

The management spent five hundred dollars in securing extra attractions, and consider the money profitably invested.

The yield of corn and wheat throughout this part of the country was not up to the standard, but a larger acreage of wheat was sown than usual this fall, and thus far promises well.

Our grounds are undergoing extensive improvements, and the prospects for a good Fair next year are very flattering.

LAWRENCE DISTRICT.

Owing to the unprecedented bad weather our Fair was declared off, and we had no exhibition. However everything seemed to indicate a good show had the weather been favorable.

The agricultural interests are very much depressed at present, and the farming community are somewhat despondent. This is due to some extent to poor crops, but mainly to unfriendly legislation which has favored trusts and combines that have forced up prices on those things which the farmer has to buy, and reduced them on what he has to sell. To counteract this and for self-preservation the farming community is rapidly forming

Farmers' Organizations

Within our territory, and the movement will ere long have every school district organized. The F. M. B. A., the Grange, and the Alliance are all represented. The Grange has a nice hall and a strong organization at Oaklandon (Marion Co.). These clubs meet weekly, discuss questions bearing upon the farming interests, have their social gatherings and reunions. If rightly managed these institutions will be of incalculable benefit to the farming community. Let us squelch all selfish ambition, demagogism and sectional strife, and work for the good of all. At the late election the majority for

Free Gravel Roads

Was very satisfactory and we can now, for the first time for many years, get to market without being heavily tolled. Although making our taxes a little heavier for the present, in the aggregate it will be much cheaper and more convenient.

Natural Gas

Seems to be "all right" in this territory, and is holding out remarkably well. Rather than a diminution, there seems to be an increased supply from the older wells, and the new wells seem to be stronger from the first. Nearly every city, town, village and neighborhood is supplied with this convenient and cheap fuel. Prices of

Farm Products, Hogs and Cattle,

Are not satisfactory. With a short supply of hogs and cattle, they, perhaps, never were lower. Wheat and hay are also low.

Improvements

Have been influenced by the general depression. But few new houses, barns and other structures have been built the last year.

Our Territory

Embraces the northern part of Marion County, the northwestern part of Hancock and the southeastern part of Hamilton counties. In this region lies some of the best farming land in the State. It is also favorable to some varieties of fruit, such as berries, cherries, apples, plums, pears and grapes. This section is well watered, supplied with timber, gravel, clay for brick and tiles; is healthy, and has (or can have)

Natural Gas on Every Farm,

By simply boring for it. The shipping facilities, together with natural gas and raw material, make it a very favorable place for

Manufacturing.

Persons desiring to make investments, or go into business, will do well to investigate the natural and artificial advantages of this section of our State.

LOOGOOTEE DISTRICT.

The Loogootee District Fair Association met and reorganized June 10, 1890, under the name of the Loogootee District Fair Company, and is composed of the counties of Martin, Daviess, Lawrence, Orange, Dubois and Greene. The agricultural interests are gradually improving each year. We have a great variety of soil, which is adapted to all farm products of which the climate will admit. The effects of our Fair can be seen all over the District, not only in the improving of stock and crops, but the farms seem to have a more thrifty appearance.

Our first Fair under the new management was advertised for September 10 to 13, but on account of bad weather was postponed until October 7 to 11, 1890, and, considering everything, was a financial success. After paying all premiums in full, and all other necessary expenses, we had a balance of \$300 remaining in the hands of the treasurer.

Owing to the postponement, the display in some of the departments was not as great in quantity as could be desired, but was very satisfactory in quality. Machinery and all kinds of agricultural implements were represented, and made a grand display. The exhibit of horses, hogs, sheep and poultry was large, and of excellent quality. Among the horses shown were specimens of the Norman, Clydesdale and Englishshire, all fine specimens of their respective breeds. The sheep consisted of Shropshire and Cotswolds, which were also fine specimens.

We have a beautiful Floral Hall, 36x50 feet, which is under the entire control of the ladies, and through their energy and good judgment a display was made far exceeding any former occasion of the kind, and presented a view to spectators that called forth expressions of delight and approval. Too much credit can not be given to the ladies of Loogootee and vicinity for their untiring efforts in filling up our Floral Hall.

The Fair grounds contain 40 acres, are well located one-half mile from town, and abundantly supplied with water. About 25 acres of forest trees are on the north and east sides of the grounds, and in the southwest part is one of the finest half-mile race tracks in the State. A splendid amphitheatre, capable of seating 2,000 people, faces the track. Taking everything into consideration, we are well pleased with our success so far, and expect a good Fair next year.

MIAMI AND FULTON.

This Society attempted to hold their eighth annual exhibition on grounds near Macy, Miami County, commencing September 10, but, on account of the very unfavorable weather, was postponed to October 7, at which time another effort was made, with the weather not much improved.

The exhibit was by far the best ever had here, there being about five hundred more entries than at any previous exhibit—in all, 1,629 entries of most excellent quality.

The attendance was not as large as was expected by the management, yet, with our light gate receipts and a heavy improvement account, our premiums were paid in full, hoping that another year we may have better weather.

We have made a good half-mile track, twenty new box stalls, and many other needed improvements this year.

The past season has not been one of average prosperity to our farmers. The wheat crop was rather light, both in yield and quality, yet with the advance in price may make nearly its usual income. Cattle and hogs have been very dull, being grown on 40 to 60-cent corn, and sold at 2 to 3 cents for cattle, and about 2½ to 3¼ cents for hogs, which means a loss to the feeder; yet there is one good result following these dull times in live stock—the scrub is going to make room for a high grade and full-blood stock. The same progressive spirit is needed among our grain-growing farmers; a better system of fertilizing and cultivation is needed, thereby raising more bushels on less acres, and in this way reducing the cost of production.

Our once heavy forests are fast giving way to the woodman's ax and saw, and the time is not far distant when much of the timber now being shipped away from here will be needed for home consumption.

MONTPELIER TRI-COUNTY.

The Second Annual Fair of the Montpelier Tri-County Association was held on the grounds adjoining the corporation of Montpelier, and owned by the Association, from August 12 to 15. Owing to the early date of the Fair and the extreme drouth the show in grain, seed and vegetables was small. The exhibition in the live stock classes was fair, especially in the horse department, which was as good in quality as we have ever had. Owing to the extreme drouth our farmers were more discouraged than they have ever been in this county. Our Association is composed of Blackford, Wells and Jay counties. The crop of 1890 was the lightest ever raised here, with the prospect of almost an entire failure in corn at the time of our Fair; and in the face of all these discouragements our receipts were equal to the expenditures, with but a small balance on either side. The vicinity of Montpelier appears to be the center of the oil field in Indiana, and a great many oil wells have been drilled this fall and winter, and more are being drilled now, and the prospect is very satisfactory and large amounts of oil will be marketed as soon as pipe lines are laid. Our wheat never looked better at this time of year. Health good; stock in fine condition and doing well.

NEW CARLISLE DISTRICT.

The Sixth Annual Fair of the New Carlisle and Farmers' Union Fair Association was held on their grounds at New Carlisle September 24 to 26. The exhibits in many of the departments were not as full as some of our past Fairs, owing mainly to the unfavorable weather during the summer months, yet financially the Fair of 1890 was a success. The cloud of indebtedness that has hung suspended over our heads for several years has been swept away, and we are now free from debt and have a small surplus of funds in the hands of the Treasurer of the Society. What was written in the report forwarded to the Indiana State Board in 1889, relative to the interest manifested in our Fair work by the people

of this Fair District, and that pertaining to the advancement in farming methods, and the improvement and modern character of the farm buildings, fences, the drainage, etc., are equally applicable to the year 1890. The improvement and advancement still continues. Our farmers are paying more attention to pedigreed stock and raising a less number of scrubs. We are located in the center of one of the richest and most fertile farming districts in this State, about equi-distant between South Bend and Laporte, county seats of St. Joseph and Laporte counties. The leading manufacturers of these two cities annually place exhibits on our grounds, which not only prove very attractive to the visitors but profitable to the exhibitors. The crops were cut somewhat short this year on account of the dry weather. Wheat was a fair crop; corn, oats and clover seed about one-half crop; barley and apples almost an entire failure. Our Association is now discussing the feasibility of extending the present Fair grounds, and putting in a good half-mile track. The citizens of the district are taking quite an active interest in our Fair work, and, together with the manufacturers mentioned above, contribute annually a fine collection of special premiums. The floral exhibit, as usual, was the most attractive on the grounds. In fact the ladies' department was the most complete of all. Our Fair has come to stay, and the prospect for a big Fair for 1891 is good.

WAYNE, HENRY AND RANDOLPH.

The Eleventh Annual Fair of the Wayne, Henry and Randolph County Agricultural Association was held at Dalton, Wayne County, from September 9 to 13. Great interest was manifested by both exhibitors and visitors. The Board of Directors and officers spared no pains, time or expense in preparing for the Fair, which would have been the crowning one ever held by said Association, had the weather permitted. Owing to the continued rain, the Fair was financially a failure, as the statement will show, there not being enough money paid in to defray expenses. There were no premiums paid, although there were \$500 in premiums awarded.

Since the Fair new stock has been subscribed to the amount of \$250 or more. New stalls will be built, buildings repaired, and the Dalton Fair will hold her place in the front as an agricultural Fair in 1891.

WASHINGTON AND CLARK.

The Association has its grounds at Pekin, on the Louisville, New Albany and Chicago Railroad, 27 miles from Louisville, Kentucky, and 24 miles from New Albany, Indiana, in Washington County, and within four miles of the corners of four counties—i. e., Washington, Clark, Floyd and Harrison. We have about 30 acres inclosed, and about one-half of this is a beautiful natural grove of forest trees, very thick, shady and pleasant. The grounds are near the depot, so there is no hack hire or dusty walk to get to the entrance. We charge nothing for seats in the amphitheatre. There are no saloons within eight miles of us, and we do not permit gambling in any form. It is a farmer's Fair, run by farmers, and has been a uniform success.

Our Seventh Annual Fair, for 1890, had the hardest luck of any. The time was set and all the advertising about done, when, unfortunately, the management thought best to change the time. The Fair was held September 10 to 13, the same time as two neighboring Fairs. Then the weather was very unpleasant—cold and rainy, or threatening rain, every day of the Fair. But, all in all, we did very well. Every department was well filled, and more space had to be provided. New stalls and pens were built to accommodate exhibitors, of whom many new ones from a distance were present. A great interest has sprung up in our Live Stock Department, including poultry, etc. There has been one hundred per cent. improvement in all departments upon our farms as a result of our Fairs at Pekin.

We have good roads to our grounds, and in favorable weather we can show the largest crowds in attendance on our Fair of any Association in this part of the State.

We have had no hog cholera or chicken cholera.

The crops for 1890 were about an average in quantity, but a little above in quality.

Fruit of all kinds is one of the products of our locality, but was nearly a total failure this season.

Our Fair has brought all kinds of farming machinery and fertilizers into notice, and improved machinery and methods are plainly visible all over the land.

WARREN TRI-COUNTY.

This Society held its Seventh Annual Fair September 9 to 13, on the grounds adjacent to the town of Warren, which is located in the southeast corner of Huntington County. Its territory is composed of Huntington, Grant and Wells Counties. We are centrally located as to county seats—Huntington on the north, Bluffton on the east, Hartford on the south, and Marion on the west, each from fourteen to eighteen miles away, and surrounded by the best of farming lands—rich burr-oak flats, which are now well drained. We have patrons who, through the impetus given by this Society, have been gradually improving their stock until they have some of the finest and best specimens to be found anywhere.

The show in the Horse Department has demanded more stabling each year, with many of the best breeds of the country on exhibition, while the imported class has largely increased.

The Cattle Department, while not so full as the previous year, was in no case lacking in good specimens and made a splendid show.

The *hog*, in this grand corn-raising district, has assumed no mean place in the advancement and improvement of stock. He is, to a great many farmers, almost the only source of income, and the time is here when nothing short of a well-bred Poland China or a genuine specimen of Black Berk will fill the eye of our average farmer.

Sheep are on the increase in the district, with many flocks of fine animals, some of the flocks showing fine imported specimens. The number on exhibition

was about the same as former years, while the improvement in quality was very marked. The interest that has been awakened in sheep husbandry among our farmers in the last few years is simply wonderful.

The Poultry Department had many exhibitors, and a fine showing was made, comparing favorably with former years. Much interest is taken in fowls among our patrons.

With the superb half-mile track and other facilities, the speed department is the most extensively patronized of any, and immense crowds of people are attracted to the Fair by this means.

The uninterrupted success for six consecutive years was broken this fall. It rained from Tuesday morning until Saturday morning; the attendance was small, compared with former years, and receipts were correspondingly light.

Notwithstanding the reverses met, everything was paid in full, and, owing to the good management of the officers and Directors, there is still a surplus in the treasury.

The Grain and Vegetable Department was among the best we have had; while in some of its classes (owing to the dry season) it was short, in others it was ahead. So this department fully maintained the high standard of excellence it had attained.

The ladies deserve more than a passing notice. The display in the Domestic Department was grand. Needle-work in abundance, and of the finest and best. Canned fruits, jams and jellies, made a display which was the delight of spectators. There was but one thing on the grounds that attracted more attention than the Floral Hall.

SWITZERLAND AND OHIO.

The Thirty-ninth Annual Fair of this Society was held September 9 to 13. As the years would indicate, this Society is no Jonah's gourd or mushroom growth, but quite persistent and tenacious of life. She has passed through some trying ordeals, and in all kinds of weather known to the climate and season, she has proved invincible to drouth and dust, and can not be smothered out. Neither has she been drowned out, though she was somewhat strangled last fall. It rained every day of the Fair except the last day. This interfered much with the exhibits, speed rings, etc., and very largely with the attendance. There were liberal premiums offered, over 1,200 entries made, and more than the usual attractions provided. The receipts were less than the expenditures, yet all claims have been paid.

Condition of Agriculture.—It is an indisputable fact that there exists a very general and widespread depression in agriculture all over our country and extending to foreign lands. A general complaint of short crops and comparatively low prices. As to this general condition we differ not very materially from the rest of the country. There doubtless are localities that, parched by drought, scorched by hot winds, or devastated by fire, flood or cyclone, in a much worse condition than we are; and perhaps there may be other localities where the season has been propitious for the raising of such products as have failed elsewhere, and as a consequence are obtaining high prices for their potatoes, apples, etc. We shall not

claim to rank first in the matter of prosperity, neither are we last or worst, but, taking an aggregate of the whole country, as we see it, and striking the average, our place is surely above the line. Yet among our farmers there is a feeling of discontent. We hear it remarked that farming is not what it should be; farming don't pay; no money in it, and some claim that the farmer is not rewarded in the same degree as are men engaged in other callings, trades or professions. Be this as it may, speaking from a farmer's standpoint, laying aside our green goggles, we see this thing plainly that, when the farmer does not thrive, all other business and trade is correspondingly dull and unremunerative, and that agricultural prosperity means general prosperity to the whole country and every legitimate business thereof. But if the farmer fails and his gallant ship goes down, all this minor craft is swallowed up in the vortex. Thus the farmer and his occupation is the foundation, the chief corner-stone on which the fabric of this great country rests, and thus this industry may fail, and that business may die out; in fact, all other occupations may cease except that of the farmer, and yet man can exist as he evidently did in his primeval condition; but man being of the earth earthy, out of the soil must come his subsistence. And the farmer is the man who digs for it. We would not belittle the importance of other vocations, the blessings, comforts, conveniences, elevation and advancement that they bring to mankind. Yet farming is the one essential business of the world. The dignity of this calling is above all others in that the farmer received his commission from the highest possible authority. He is a very worthy personage and deserving of the best that the land affords. It is our wish that he get it, and be liberally rewarded for all his labor. But let us see what our farmers have done the past year, and the difficulties they have encountered. First, the winter of 1889 and 1890 was very mild in temperature. No snow and very little freezing of the ground, but much rain and mud. As a consequence the soil was compacted and heavy, difficult to pulverize and properly convert into a seed bed, and seeming to lack that fertility which exists after hard winters of much snow and deep freezing, whereby the soil becomes impregnated with the needed gases and rendered friable and lively. We had two floods in the Ohio river in early spring, inundating the bottom lands, and the best of our low lands along the creeks. The table lands back from the river were also in soak. Thus the spring opened unfavorable for the farmer. But few oats were sown, and they made but a poor crop. But few potatoes of very early planting, they were fair; the main planting were very poor; the few planted late made a good crop. Altogether the crop is not more than one-third, and of inferior quality. Scarce at \$1 per bushel; last spring, 10 cents.

About the usual area of corn planted. Owing to wet weather during its earlier stages not well cultivated, and cut short in earing time by drought. Not over two-thirds of a crop produced, leaving but a small amount for market; worth 50 to 60 cents per bushel. Wheat looked promising during winter, but turned out rather poor; little grain for amount of straw, yielding in some places 16 to 18 bushels per acre, and from that down to nothing, making an average of about 7 or 8 bushels; worth \$1. As to the tobacco crop, the season for setting was favorable, and an unusually large acreage was planted; not so favorable for tending or the growth of the crop; the yield not large; the season for cutting and curing



rainy, consequently there is much inferior and damaged tobacco which must be disposed of at low prices. Clover and hay crop very good, both in quantity and quality, much hay being marketed at from \$5 to \$8 per ton. This price, deducting expense of harvesting, housing, baling and hauling, leaves for the hay very little. Rye, beans and buckwheat, short crop. Sorghum, fair crop. Sweet potatoes and turnips in abundance. Onions poor crop. Of small fruit, except cherries, a plentiful crop. No peaches, few pears and perhaps one-fourth crop of apples. Winter apples unsound at the core; did not keep well; the best were marketed at \$2 to \$2.25 per barrel. The opinion prevails that fruit culture can be made one of the most profitable industries, and our people are planting orchards extensively. The honey crop was a little short; worth 12½ cents per pound. Stock horses and mules are not bringing as good prices as formerly. Cattle are plentiful but low in price, ranging from 2 to 2½ cents on foot. Sheep in better demand and commands better prices than any other stock. Hogs in good supply, being marketed at \$3.75 to \$4 per hundred net. Poultry, abundant supply and low in price; yet eggs are scarce and high. It would seem that even the hens have concluded that farming don't pay. We have nothing specially to note in the way of improved methods in farming. Clover has become the farmer's chief reliance as a fertilizer, and we verily believe that had this come into general use years ago our country to-day would have been much richer. Commercial fertilizers are used to a considerable extent, especially in wheat raising. The good effect is always apparent, and so is the expense. They seem to be so nearly balanced that our farmers can hardly determine where the profit is. Our people seem to realize the importance of having better roads, and there is a move in that direction. Some free gravel road is now being made. More gravel or pike roads are being talked of, and the question is being discussed as to the propriety of the county buying up the toll roads and making them free for travel. Our railroad still hangs fire, and it don't look as though we of this generation will ever be shot with a locomotive if we stay at home. We have some inducements to offer the air ship company. We will furnish the right of way and just as good a track as they will ever sail on, and when they give us assurance of safe transit we propose to fly as high and sail as far as anybody, but doubtless will come back here to roost, for we like this country pretty well after all; consider it a very good country.

RICHMOND DISTRICT.

The Richmond Fair and Driving Park Association was organized under the State laws on July 9, 1890, in the city of Richmond. The articles of Association were filed for record in the office of the Recorder of Wayne County, Indiana, on July 12, 1890. The capital stock of the Association was originally \$12,000, but is to be increased to \$25,000 inside the coming month.

The Board of Directors, whose terms of office expire next October, are John F. Miller, Omar L. Hittle, George W. Mashmeyer, John W. Sligar, D. L. Mather, B. H. Moormann and Isaac Kline. The officers are John F. Miller, President; Omar L. Hittle, Vice-President; Ed. H. Cates, Treasurer, and Isaac Kline, Secretary.

The grounds of this Association include 160 acres of land splendidly adapted for the purpose, and we consider them the finest in the State. They have cost us \$20,000 up to date, and we expect to expend at least \$40,000 before we shall consider them completed. The track is an exact mile, as evidenced by the affidavit of the engineer, and so laid out and the turns thrown up, that a horse in making the turns makes a curve of but two inches in each fifty feet. That it is a fast track is proven by the fact that at our meeting in October a record of 2:14½ was made on it, although it had not been completed until the day before the races commenced.

Our entire fair buildings are not yet completed, but will be in the spring. We have a grand stand capable of seating 2,500 people; a power hall and electric light station; six stables, built after the most approved plans, and two rows of stabling beside, giving us 350 box stalls, all enclosed, none less than 10x12 in size. In addition, we have water works and natural gas on the grounds, and ample offices, stands and the like. The plans for the Floral Hall and other buildings are selected and the buildings will go up with the opening of spring.

Owing to a lack of time to complete the buildings and claim our dates we were unable to give a complete agricultural Fair last fall, though we shall do so this fall, and therefore gave only a horse Fair. In this we were successful beyond our best expectations. There were over 600 horses exhibited, and among them we paid nearly \$1,500 in premiums. Our premium list was a most liberal one, being larger than any other I saw during the season.

Our receipts during the four days was \$7,582.35; disbursements, for premiums and other expenses, \$6,121.24.

POPLAR GROVE.

We believe, all things considered, the farmers of Howard, Carroll and Cass counties are as energetic and prosperous as those of any part of our State.

Those who have attended the annual exhibitions of the Poplar Grove Fair Association for the last seven years and have compared exhibits and noted the rapid improvements, can not help but feel that our Association has given a wonderful impetus to competition in all the vast array of articles that are the products of the farm and home.

The eighth annual exhibition, which was held September 29 to October 3, was, in the quality of exhibits, the peer of any of its predecessors, notwithstanding the fact that we had passed through three successive years of partial failures of crops; 1888, 1889 and 1890 were short crops in wheat; 1890 witnessed a short corn crop, with oats, potatoes and fruit almost a total failure.

The years 1888 and 1889 witnessed the decimation of the herds of swine, thousands being swept away by cholera, so-called. Still our people are hopeful.

Every department of our last Fair gave an index of the energy which characterizes our people, for, with all the above named discouragements, marked improvements were perceptible everywhere, and with the great improvements in breeding, feeding and cultivating and with the bright prospect for a wonderful wheat crop in 1891, good health on the farm and in the home, together with

better prices prevailing, we feel that agricultural toilers have just cause to be thankful, and that the ninth annual Fair of the Poplar Grove Fair Association will be a grand success.

OAKLAND CITY.

The First Annual Fair of the Oakland City Agricultural and Industrial Society was held on its beautiful grounds at the south edge of Oakland City, which is one of the most progressive little cities in Southern Indiana.

Our Fair was held August 25 to 30, and, with the exception of rain on Tuesday, the weather could not have been more favorable.

The number of entries in all classes were far in excess of all expectation. This section being noted for its fine live stock, the entries in that class were of a very high class.

Although there are two old county Fairs held within fifteen miles of Oakland City, the attendance was large and the receipts paid all premiums in full and left quite a nice balance in the treasury.

The Fair will have a tendency to stimulate the farmers to even greater exertion to surpass each other in raising a fine grade of stock in all classes.

NORTHEASTERN INDIANA.

The Nineteenth Annual Exhibition of this Association was held on their grounds, near Waterloo, October 6 to 10, inclusive. Two years ago we increased our capital stock from \$10,000 to \$15,000, and sold \$400 worth of new stock, thereby getting into the Association some more good, live Fair workers. All went to work with a will, and built 24 new stables, painted all the buildings on the ground in good style, and expended something over \$100 grading the track, making permanent improvements to the amount of \$600. The success of this Association, attained in former years, was well sustained this year. In fact, in many respects, the satisfaction given our patrons never was so good.

The show in the Live Stock Department increases with each year, both in number of entries and improvement in blood. The total stock entries were 717, among which were some as fine bred cattle as ever were shown on our grounds.

There never was anything like such a show of horses, heavy draft being the leading feature in this department. The exhibit of general purpose horses, and most of them raised in this county, is worthy of mention, and in a great measure their superior qualities over what they were but a few years ago is largely due to our stock shows.

The sheep display was not up to former years in number of entries, but in excellence of stock never was better. There were several Fine Wool Merinos on exhibition which were just imported at a cost of one thousand dollars.

The show of hogs was commendable, from the fact that it was wholly made up by home breeders, and, with one exception, where the judges ruled out several pens on the ground that they were diseased, the display was very creditable.

The poultry show increases with each year; 228 entries, being nearly double the amount we ever had before, and the greater portion were fine bred birds.

In textile fabric, needle work and fine art, the show was grand. The Floral Hall is an octagon building, sixty feet in diameter, and goods enough were packed in to fill three such buildings in the way they should be displayed.

In Mechanical and Horticultural Departments the usual interest was manifest.

The attendance was such that the receipts were sufficient to pay all premiums and running expenses, but the extensive improvements made this year leaves us with an overdraft of \$168. But the managers congratulate themselves on holding the best Fair they ever had.

Crops in Dekalb County during the year were about an average, wheat running 16 bushels to the acre.

The growth of corn was retarded somewhat by drouth, yet the yield was fair.

In comparing the present mode of cultivating the lands with the manner in which it was carried on but a few years ago, the careful observer will readily notice a great improvement.

All marshes and swamps are being well ditched, and wet lands underdrained, up land manured and fertilized, and in anything like a favorable season the farmer realizes a good yield for his labor.

NORTH MANCHESTER TRI-COUNTY.

Our Association held its Seventh Annual Fair at North Manchester, September 30 to October 3.

The attendance was very large, a first-class exhibit was given in all classes and more premiums paid than last year, and the receipts were larger, leaving a good-sized balance in the treasury.

We are glad to note that our farmers are getting educated to the fact that the best breeds of live stock are the cheapest.

The display of full blooded horses was the finest ever exhibited in the history of the Fair, while the heavy draft, general purpose and light harness classes were filled to overflowing.

The display of Shorthorns, Herefords and Holsteins can not be excelled.

Among the many pens of hogs could be found herds that have never been beaten at home or at other Fairs.

Sheep were well represented and of excellent quality.

Poultry of all classes and of the very best breeding overcrowded the hall allotted for them.

The Association having put up a line shaft for those wishing to exhibit mechanical implements, we had a better display than last year.

Although a large addition had been built to the Floral Hall, it kept up its past record and was thoroughly filled, all the available space being used.

The one-judge system of awarding premiums was carried out again this year and the experts pleased all.

The crops in this locality were poor this year, so the exhibit was not as large as usual; although the apple crop was nearly a complete failure in this section, we had a very good display.

REMINGTON DISTRICT.

The farmers in this part of the State raised a large crop of hay the past year, but the price is very low. Oats were a very poor crop, and the price is high. Corn was a good crop, in some parts very heavy, and the price is good.

There are not as many cattle and hogs raised here as formerly, and the price is very low. A great many good draft horses are raised here, also quite a number are turning their attention to raising high-bred horses.

NORTHERN INDIANA AND SOUTHERN MICHIGAN.

The ninth annual Fair of the Association was held on our grounds, midway between South Bend and Mishawaka, September 15 to 19. All departments were well filled, and the management was satisfied with the outcome of the Fair. This year we had one expert judge in all live stock classes. It gave the best of satisfaction to exhibitors, much more so than the old method of having three on each committee. The wheat and grass crops in this section were fully up to an average. Corn and potatoes were cut short by lack of rain in the latter part of the season. This, in connection with an early frost, reduced these crops at least twenty-five per cent. Our farmers begin to think the dry seasons have come to stay, as last summer's drought was the fourth in succession. The fruit crop was almost an entire failure.

EXHIBIT OF AGRICULTURAL SOCIETIES OF INDIANA, 1890.

NAME OF SOCIETY.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Indiana State Board of Agriculture.	W. A. Banks	Laporte	Alex. Heron	Indianapolis.
Adams	L. C. Miller	Decatur	A. A. Nichols	Decatur.
Boone	John M. Ball	Lebanon	Jacob S. Cobb	Lebanon.
Clinton	James McDavis	Mulberry	Joseph Heavilon	Jefferson.
Carroll	Phillip Ray	Camden	M. T. Dillon	Camden.
Davies	A. E. Johnson	Washington	James C. Lavelle	Washington.
Decatur	John P. Childs	Greensburg		Greensburg.
DeKalb	John L. Davis	Auburn		Auburn.
Delaware	John M. Graham	Muncie		Muncie.
Dubois	E. R. Brundick	Huntingburg	F. W. Katterhenry	Huntingburg.
Elkhart	E. D. Chipman	Goshen	Thomas A. Starr	Goshen.
Fulton	John P. Wilson	Kewanna		Rochester.
Grant	E. P. McBire	Marion		Marion.
Gibson	R. H. Hargrove	Princeton		Princeton.
Greene	John W. Walford	Linton	Jas. H. Humphreys	Linton.
Greene (Central)	S. W. Artall	Bloomfield	Ot. Herald	Bloomfield.
Hamilton	John S. Kerchaval	Sheridan	Will T. Woods	Sheridan.
Harrison	J. W. McKinster	Corydon	T. S. Getsendanner	Corydon.
Hancock	J. Ward Walker	Greenfield	Chas. Downing	Greenfield.
Hendricks	O. W. Lowry	Jamestown	J. D. Hostetler	North Salem.
Henry	T. S. Phelps	New Castle	O. L. Jeffries	New Castle.
Huntington	Joseph G. Amos	Huntington	L. T. Bagley	Huntington.
Howard	Wm. J. Floyd	Bloomington	Geo. W. Landon	Kokomo.
Jackson	E. H. Burrell	Brownstown	W. L. Benton	Brownstown.
Jay	E. Lyons	Boundary	H. J. Volaw	Portland.
Jefferson	Hiram Francisco, Sr.	Wirt	Jos. M. Gravens	Madison.
Jennings	J. W. Meyers	Butlerville	W. G. Norris	North Vernon.
Johnson	Wm. N. Province	Provincetown	Wm. S. Young	Franklin.
Knox	N. O. Pennell	Vincennes	James W. Emison	Vincennes.
Lake	P. A. Banks	Crown Point	Geo. I. Maillet	Crown Point.
Madison	William Crine	Anderson	Edmund Johnson	Anderson.
Marion	Chas. A. Howland	Howland's	Ida F. Richardson	Indianapolis.
Miami	Jesse S. Zera	Peru	Fred. W. Conradt	Peru.
Monroe	W. W. Wicks	Bloomington	Geo. P. Campbell	Bloomington.

BOARD OF AGRICULTURE.

EXHIBIT OF AGRICULTURAL SOCIETIES OF INDIANA, 1890—Continued.

NAME OF SOCIETY.	PRESIDENT.	ADDRESS.	SECRETARY	ADDRESS.
Montgomery	John L. Davis	Crawfordsville	W. W. Morgan	Crawfordsville.
Newton	C. E. Triplett	Morocco	J. M. Chisum	Morocco.
Noble	Orlando Kimmell	Ligonier	J. H. Hoffman	Ligonier.
Owen	W. M. Franklin	Spencer	Mat Mathews	Spencer.
Parke	J. A. Allen	Rockville	W. H. Elson	Rockville.
Porter	William Riggs	Valparaiso	E. S. Beach	Valparaiso.
Perry . . . . .	. . . . .	Rome	O. E. Robinson	Rome.
Pulaski . . . . .	. . . . .	Winamac	John T. Holsinger	Winamac.
Putnam . . . . .	. . . . .	Pincastle	N. W. Ader	Bainbridge.
Randolph	Ben. F. Bolts	Winchester	D. E. Hoffman	Winchester.
Ripley	Resie Johnson	Elrod	E. H. Row	Osgood.
Rush	Fred O. Capp	Rushville	Chas. F. Kennedy	Rushville.
Spencer	J. S. Wright	Rockport	T. R. Austin	Chrisney.
Steuben	Henry Linden	Angola	F. McCortney	Angola.
Shelby	B. S. Setton	Shelbyville	E. E. Stroup	Shelbyville.
Sullivan	Thos. S. Mann	Graysville	James M. Larr	Sullivan.
Tipppecanoe	Jasper N. Dresser	Lafayette	Mortimer Levering	Lafayette.
Tipton	Geo. W. Myerly	New Lancaster	W. R. Oglesby	Tipton.
Vigo	Frank McKean	Terre Haute	Charles C. Oakley	Terre Haute.
Vermillion	S. B. Dallas	Newport	L. Shepard	Newport.
Wayne	John Bowman	Hagerstown	J. M. Lantz	Hagerstown.
Washington	M. Coffman	Salem	El W. Menough	Salem.
Warrick	D. E. Hart	Boonville	John E. Baker	Boonville.

DISTRICT AGRICULTURAL SOCIETIES, 1890.

NAME OF SOCIETY.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Acton	H. R. Mathews	Acton	T. M. Richardson	Acton.
Arcadia	Jonathan Krause	Arcadia . . . . .	. . . . .	Arcadia.
Bridgeton Union	B. F. Sellar	Bridgeton . . . . .	. . . . .	Rockville.
Bremen	John Huff	Bremen . . . . .	. . . . .	Bremen.
Eastern Indiana	E. B. Spencer	Kendallville . . . . .	. . . . .	Kendallville.
Fairmount Union	John Flannagan	Fairmount . . . . .	. . . . .	Fairmount.
Fountain, Warren and Vermillion	John M. Conover	Covington . . . . .	. . . . .	Covington.
Franciaville	J. G. Hunt	Medaryville . . . . .	. . . . .	Franciaville.
Grange Jubilee	D. P. Monros	Saluda . . . . .	. . . . .	Stony Point.
Henry, Madison and Delaware	Wm. H. Keeling	Meenaciesburg . . . . .	. . . . .	Middletown.
Knightstown	O. E. Holloway	Knightstown . . . . .	. . . . .	Knightstown.
Lawrence	Levi Bolander	Oaklandon . . . . .	. . . . .	Indianapolis.
Loogootee	E. C. Braxton	Loogootee . . . . .	. . . . .	Loogootee.
Miami and Fulton	T. B. Mullican	Macy . . . . .	. . . . .	Wagoner.
Montpelier Tri-County	J. G. Wood	Montpelier . . . . .	. . . . .	Montpelier.
New Carlisle	Granville Woolman	New Carlisle . . . . .	. . . . .	New Carlisle.
North Manchester Tri-County	Aug. C. Mills	North Manchester . . . . .	. . . . .	North Manchester.
North-Eastern Indiana	H. V. Crooks	Waterloo . . . . .	. . . . .	Waterloo.
Northern Indiana and Southern Michigan	Samuel Bowman	South Bend . . . . .	. . . . .	Mishawaka.
Poplar Grove	Wm. W. Smith	Kokomo . . . . .	. . . . .	Carroll.
Remington	D. H. Patton	Remington . . . . .	. . . . .	Remington.
Spencer County Fair Association	E. D. Ehrman	Rockport . . . . .	. . . . .	Rockport.
Switzerland and Ohio	R. W. Fugit	Rising Sun . . . . .	. . . . .	Vevay.
Washington and Clark	P. H. Gill	Pekin . . . . .	. . . . .	Pekin.
Warren Tri-County	Jonas Good	Warren . . . . .	. . . . .	Warren.
Wayne, Henry and Randolph	B. B. Beeson	Dalton	Dalton.

EXHIBIT OF AGRICULTURAL SOCIETIES.

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H ₁	240	30	70	65	75	100	580	160	275	220	8	300	700	150	550	10	3,113
H ₂	249	14	34	68	61	64	478	40	83	15	..	194	159	58	4	18	1,049
H ₃	189	15	90	36	36	102	468	9	125	..	..	320	168	80	..	..	1,179
H ₄	573	19	59	62	116	118	746	23	46	108	..	123	170	..	..	..	1,311
H ₅	474	31	112	130	108	68	904	81	480	96	..	376	267	56	87	..	2,287
H ₆	178	2	58	41	75	340	685	65	291	64	19	120	524	148	..	..	1,858
H ₇	268	12	42	49	148	81	601	14	62	11	..	113	183	21	..	..	1,095
H ₈	309	..	108	98	88	286	869	73	104	122	..	158	1,067	253	124	77	2,877
Henry, Madison and Delaware Ag- ricultural Society.	327	10	195	98	211	226	1,065	390	503	76	..	310	916	137	220	..	3,617
Huntington County Ag'l Society.	302	..	104	47	68	164	703	35	..	235	..	240	712	..	..	..	1,915
"	195	2	96	104	94	116	707	38	284	227	7	626	777	83	..	..	2,648
"	234	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	234
"	164	12	74	58	74	70	452	25	78	..	3	..	..	..	..	..	558
"	243	4	63	25	125	79	563	..	918	57	..	322	1,020	181	..	..	2,451
Knox County Agricultural Society.	388	15	65	34	77	80	679	306	945	150	20	300	1,508	407	118	..	3,908
Knightstown District Ag'l Society.	269	2	44	38	22	193	588	45	79	27	7	65	832	165	229	..	1,817
Lake County Agricultural Society.	149	..	104	16	23	39	329	..	42	10	..	20	123	38	5	..	567
Leoprottee District Ag'l Society.	110	10	15	48	9	11	208	..	22	14	..	300	75	40	..	..	654
Madison County Agricultural Soc'y	141	..	29	66	32	315	583	21	205	80	9	172	961	112	..	..	2,161
Marl.	105	..	61	60	93	275	608	..	114	..	..	92	362	96	31	..	123
Mian	116	..	64	85	42	82	380	..	431	112	..	196	222	57	76	60	2,038
Mian	..	..	..	..	..	..	..	..	..	..	..	306	..	..	..	..	1,025
Mon.	554	14	105	110	274	446	1,503	33	302	137	49	463	537	258	83	1	3,366
Mont	123	..	22	55	34	94	327	19	56	..	..	201	363	..	..	..	686
"	89	1	22	34	20	68	234	14	67	11	..	71	61	5	44	21	306
"	58	2	25	81	9	25	150	..	104	70	4	101	172	20	125	20	766
"	220	..	75	100	53	80	628	33	175	75	..	125	600	200	5	..	1,740
"	254	..	76	61	93	165	567	100	180	52	2	53	404	116	..	116	1,633
"	240	..	69	136	54	226	717	125	240	290	109	564	1,129	120	140	..	3,414
"
"	202	7	23	47	42	74	306	29	157	36	..	143	107	101	30	33	1,153
"
Porter County Agricultural Soc'y.	182	2	52	52	35	32	355	29	53	21	..	86	204	81	43	2	626
Poplar Grove A., H. and M. Ag. Soc.	273	23	65	153	73	201	786	15	315	..	..	77	380	85	83	40	1,677
Pulaski County Agricultural Soc'y	62	5	51	30	21	6	126	8	79	15	..	57	3	22	65	..	424
Putnam County Agricultural Soc'y	296	29	51	58	126	121	685	100	142	107	8	359	177	87	135	..	1,710
Randolph County Agricultural Soc.	176	4	47	45	43	159	479	73	144	40	151	34	188	..	7	14	1,120

BOARD OF AGRICULTURE.

EXHIBIT OF AGRICULTURAL SOCIETIES OF INDIANA—Continued.

NAME OF SOCIETY.	ENTRIES.																
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Field & Garden Produce.	Horticulture.	Bees and Honey.	Domestic Skins.	Textile Fabrics.	Pine Apples.	Miscellaneous.	Special.	Total.
W. A. Soc'y.	278	8	8	27	80	143	429	8	45	49	1	205	244	83	1,014		
W. A. Soc'y.	100	6	14	29	28	62	239	13	75	39		230	238	28	908		
W. A. Soc'y.	210	16	98	57	59	84	524	57	92	36		200	711	182	1,910	38	
W. A. Soc'y.	161		103	172	34	145	615	57	288	238	5	624	530	134	2,064	27	
W. A. Soc'y.	210	19	86	100	64	246	727	65	427		7	124	767	146	2,360		
Spencer Soc'y	143	7	59	80	93	53	335	6	133			186	217	45	1,313	17	
Spencer Soc'y	308	11	57	36	46	78	531		108	53		243	150	100	1,385		
Sullivan Soc'y	163	15	62	24	58	46	368		57	157	5	586	204	18	1,430	33	
Switzerla Soc'y	182	21	57	19	28	58	360	65	141	101	6	121	303	41	1,273		
Tippecanoe County Agr'l Society	265	10	108	150	200	325	1,078	65	175	25	2	260	400	135	2,180		
Tipton Count	477	16	44	127	154	402	1,220	71	145	147	7	184	722	84	2,795	16	
Vigo Count	532	4	105	173	177	431	1,422	80	341	109		1,177	785	381	4,469		
Vermillion	165	3	54	45	67	164	518	61	73	15		62	438	79	1,378	55	
Wayne Count	160	12	56	52	52	73	406	32	112	226			306	101	1,230	44	
Warren Count	291	36	53	59	58	112	604	23	109			205	254	50	1,280	30	
	275	26	40	45	51	56	493	21	172	394		227		50	1,381	10	
	216	4	51	55	52	177	555	68	266	109	8	304	306	89	1,845		
Association	120	2	22	20	32	124	329		109	9	16	147	35		728		

EXHIBIT OF AGRICULTURAL SOCIETIES OF INDIANA—Continued.

EXHIBIT OF AGRICULTURAL SOCIETIES.

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PREMIUMS PAID.

NAME OF SOCIETY.	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Field and Farm Prods.	Horticultural.	Bees and Honey.	Domestic Skill.	Textile Fabrics.	Fine Arts.	Miscellaneous.	Special.	Total.
Acton District Agricultural Soc'y.	4169	324	330	943	322	41	\$291	2	\$19	32	..	\$28	\$18	..	..	890	\$138
Areadia District Agricultural Soc'y	43	3	8	7	57	14	117	42	8	..	..	83	20	32	..	..	152
Bridgeton Union Ag'l Society	767	36	105	44	106	34	1,002	42	30	39	98	83	78	13	20	..	1,405
Boone County Agricultural Soc'y	1,803	43	434	117	181	175	2,753	46	53	55	42	138	132	84	36	91	3,427
Bremen Agricultural Society.	532	..	65	85	30	9	771	..	55	12	4	15	51	13	16	33	979
..	1,160	29	456	110	160	105	2,020	4	43	60	..	86	153	113	47	..	2,525
..	186	8	81	39	68	25	407	..	21	5	..	46	34	31	..	..	544
..	990	72	151	101	144	66	924	36	222	33	4	156	195	..	66	..	1,636
..	1,764	43	201	77	133	81	2,296	5	26	12	40	74	53	..	69	..	2,561
..	429	..	292	176	120	56	1,073	..	..	..	..	..	..	..	400	..	1,473
..	1,457	30	337	163	150	237	2,374	78	106	49	16	..	160	..	115	..	2,900
..	257	40	160	89	68	21	1,304	13	45	56	..	..	107	..	21	..	1,446
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,761
..	482	30	368	91	134	118	1,223	16	28	99	55	72	..	16	10	460	3,329
..	165	153	98	59	8	..	425	30	43	47	..	27	3	14	10	15	612
..	746	21	164	43	194	29	1,097	15	57	14	4	96	126	73	..	11	1,576
..	435	9	63	..	21	12	510	..	20	26	..	44	63	6	13	..	712
..	915	2	212	63	180	120	1,460	16	79	12	..	110	75	35	..	16	1,823
Gibson County Agricultural Soc'y.	590	115	990	80	165	75	1,435	200	105	175	10	185	200	147	50	75	2,582
Greene County Agricultural Soc'y.	1,054	50	111	108	88	70	1,482	33	77	9	..	88	138	37	3	10	1,577
Greene County Central Ag'l Soc'y.	1,104	45	675	120	166	124	2,234	10	27	..	..	104	180	77	..	..	2,582
Hamilton County Ag'l Society.	1,185	30	107	98	173	61	1,559	67	46	15	..	23	83	..	..	..	1,910
Harrison County Ag'l Society	1,140	97	312	135	226	59	1,971	92	226	25	..	105	127	36	8	..	2,592

EXHIBIT OF AGRICULTURAL SOCIETIES OF INDIANA—Continued.

NAME OF SOCIETY.	PREMIUMS PAID.															Total.	
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Field and Farm Prod'cts.	Horticultur'l.	Bees and Honey.	Domestic Skill.	Textile Fabrics.	Fine Arts.	Miscellane- ous.		Special.
Howard County Agricultural Soc'y	\$1,460	\$25	\$312	\$119	\$225	\$150	\$2,281	\$105	\$65	\$26	\$20	\$50	\$125	\$100	..	..	\$2,771
	288	31	233	82	113	47	799	..	33	6	..	27	54	16	..	..	985
	700	..	245	72	109	111	1,237	35	26	33	..	26	157	58	836	941	1,649
	875	20	320	217	219	117	1,768	105	211	56	..	135	317	72	283	..	1,279
Knox County Agricultural Society.	526	..	324	76	174	272	1,372	60	..	112	..	38	..	237	..	..	1,880
	762	8	505	167	196	54	1,465	175	160	73	2	134	169	32	..	..	2,440
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2,091
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,463
Knightstown District Ag'l Society.	643	30	346	119	301	59	1,498	2	66	29	7	27	306	125	40	1,400	3,523
	206	33	98	36	45	185	608	73	145	51	..	212	292	94	..	2	1,485
	939	7	210	101	82	75	1,414	60	24	20	..	38	129	47	..	48	1,781
	989	..	228	36	70	23	1,344	..	28	13	..	18	77	36	9	..	1,485
Lake County Agricultural Society.	260	20	161	44	37	10	371	77	15	10	15	60	40	20	..	..	516
	1,110	..	..	74	159	141	1,645	..	15	68	15	12	350	..	..	..	2,172

Leopoldo District Ag'l Society	460	..	..	140	130	115	1,010	..	110	..	..	29	..	..	12	41	2,881
	400	..	..	23	30	30	584	..	47	13	..	140	160	76	15	1,495	2,881
	3,033	52	1,166	269	402	350	5,271	130	136	42	53	155	600	336	16	27	6,671
	705	..	103	43	41	38	930	5	32	15	..	..	43	..	..	..	1,154
Madison County Agricultural Soc'y	58	10	35	21	9	10	143	..	17	12	3	18	27	8	..	577	807
	1,035	..	293	83	74	45	1,540	30	40	20	..	30	150	85	5	..	1,900
	1,675	31	417	196	201	96	2,738	4	67	23	5	27	230	81	..	300	3,369

[illegible]

INDIANA AGRICULTURAL STATISTICS, 1890.

We present below an accurate summary of all the principal productions of the State of Indiana for the past year (1890), compiled and condensed by this department from figures on file in the State Bureau of Statistics, by permission and through the courtesy of the Chief, W. A. Peelle, Jr.

CORN.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890	87,092,513	3,446,459	25.2
1889	106,542,161	3,418,051	31
1888	128,436,284	3,419,377	37.5
1887	70,017,604	3,239,914	21.6
1886	108,217,209	3,229,445	33.5
1885	115,433,914	3,216,997	35.8
1884	89,159,799	3,137,840	28.4
1883	89,699,237	3,125,376	28.7
1882	115,699,797	3,312,683	34.9
1881	71,387,075	3,135,178	22.7
1880	87,335,014	3,130,327	28.1

The principal corn-producing counties of the State, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Tippecanoe	3,004,668	36
Montgomery	2,084,425	35
Beone	1,966,168	36
White	1,880,934	33
Clinton	1,737,303	29

Counties producing the largest average number of bushels per acre, 1890:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Spencer	1,508,400	45
Tippecanoe	3,004,668	36
Boone	1,966,168	36
Warren	1,683,072	36
Gibson	1,575,144	36

The Year 1889.

The principal corn-producing counties of the State, 1889:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Tippecanoe	2,457,420	30
Kosciusco	2,179,580	36
Shelby	2,092,265	35
Knox	2,042,511	37
Montgomery	1,956,636	33

Counties producing the largest average number of bushels of corn per acre, 1889:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Crawford	607,185	45
Posey	1,924,508	43
Gibson	1,721,040	40
Vermillion	1,556,480	40
Vanderburgh	950,280	40

WHEAT.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890.	28,352,346	2,821,129	10.5
1889.	41,541,570	2,773,883	14.9
1888.	28,750,764	2,726,111	10.5
1887.	39,096,657	2,794,196	13.9
1886.	43,226,817	2,803,922	15.4
1885.	31,640,086	2,732,250	11.5
1884.	40,531,200	2,990,811	13.5
1883.	31,405,573	3,049,209	10.2
1882.	46,928,643	3,063,348	15.3
1881.	30,635,668	3,210,547	9.5
1880.	47,130,684	3,109,845	15.1

The principal wheat-producing counties of the State, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Elkhart	921,006	19
Posey	837,096	13
Gibson	782,155	11
St. Joseph	775,546	20
Kosciusko	768,995	17

Counties producing the largest average yield per acre, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
St. Joseph	775,546	20
Elkhart	921,006	19
Lagrange.	734,388	19
Laporte	762,984	18
Marshall	695,484	18

The Year 1889.

The principal wheat-producing counties of the State, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Gibson.....	1,469,858	21
Posey.....	1,193,490	18
Knox.....	1,192,048	22
Elkhart.....	922,614	21
Shelby.....	917,056	16

Counties producing the largest avefage yield of wheat per acre, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Knox.....	1,192,048	22
Gibson.....	1,469,858	21
Elkhart.....	922,614	21
Noble.....	841,176	21
Laporte.....	798,600	20

OATS.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890.....	15,556,207	1,019,398	13.2
1889.....	28,710,935	950,231	30.2
1888.....	27,493,851	937,143	29.3
1887.....	24,378,984	886,927	27.7
1886.....	28,330,102	872,261	32.4
1885.....	25,228,033	822,934	30.7
1884.....	23,576,117	791,843	29.7
1883.....	19,567,789	656,286	29.8
1882.....	19,615,516	684,822	28.6
1881.....	14,398,420	580,279	24.8
1880.....	15,563,430	686,901	22.6

The principal oat-producing counties of the State, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Benton	845,640	18
Allen	633,446	22
Laporte	560,831	29
Lake	436,449	19
Noble	347,875	25

Counties producing the largest average yield per acre, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Laporte	560,831	29
Dekalb	425,817	27
Noble	347,875	25
Whitley	270,050	25
Henry	266,475	25

The Year 1889.

The principal oat-producing counties of the State, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Benton	1,420,402	38
Allen	933,762	37
Lake	908,080	40
Newton	698,576	38
Adams	686,299	41

Counties producing the largest average number of bushels of oats per acre, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Carroll	398,008	43
Noble	572,334	42
Adams	686,299	41
Jasper	632,884	41
Elkhart	622,052	41

BARLEY.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890.	387,802	22,745	17
1889.	416,325	19,825	21
1888.	403,515	18,913	21.3
1887.	340,663	17,311	18 5
1886.	330,078	13,577	24.3
1885.	150,531	9,186	16.3

The principal barley-producing counties of the State, 1890 :

COUNTY.	Number of Bushels.	Average Number of Bushels.
Franklin	31,966	22
St. Joseph	31,840	20
Dearborn	28,314	22
Marion	26,250	35
Elkhart	16,520	20

Counties producing the largest average yield per acre, 1890 :

COUNTY.	Number of Bushels.	Average per Acre.
Marion	26,250	35
Hamilton.	2,345	35
Marshall	8,250	30
Wabash	2,700	30
Henry	1,830	30

The Year 1889.

The principal barley-producing counties in the State, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
St. Joseph	49,434	33
Dearborn.	34,056	24
Franklin	32,430	23
Marion.	31,500	50
Shelby	26,190	30

Counties producing the largest yield per acre, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Allen	18,414	54
Marion.	31,500	50
Wabaash	3,440	40
Johnson	1,320	40
Grant	14,174	38

RYE.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890.	784,191	58,785	13.3
1889.	871,216	54,451	16
1888.	545,425	35,497	15.3
1887.	450,750	33,871	13.6
1886.	522,321	36,591	14.2
1885.	440,597	29,875	14.7

The principal rye-producing counties, 1890 :

COUNTY.	Number of Bushels.	Average per Acre.
Elkhart	75,312	18
Porter	41,180	15
Lake.	40,662	18
Madison	36,680	20
Wells	33,504	16

Counties producing the largest yield per acre, 1890 :

COUNTY.	Number of Bushels.	Average per Acre.
Montgomery	11,948	26
Vermillion	28,600	22
Tipton	13,728	22
Madison	36,680	20
Blackford	13,900	20

The Year 1889.

The principal rye-producing counties of the State, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Elkhart	130,725	21
Porter	43,712	16
Lake.	39,695	17
Allen	36,746	19
Marshall	36,460	16

Counties producing the largest average number of bushels per acre :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Spencer	9,160	40
Huntington.	9,230	26
Wells	20,275	25
Marion.	9,432	24
Henry	1,848	24

BUCKWHEAT.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890.	86,916	6,388	13.6
1889.	89,754	6,411	14
1888.	91,406	6,675	13.6
1887.	69,375	6,469	10.7
1886.	105,734	6,953	15.2
1885.	67,848	6,072	11.1

The principal buckwheat producing counties, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Lake.	9,700	20
Starke	8,028	18
Laporte	5,780	15
Newton.	3,270	15
White	3,088	10

NOTE.—The same counties have the highest average bushels per acre.

The Year 1889.

Counties producing the largest quantity of buckwheat, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Lake.	14,460	20
Starke	6,138	18
Newton.	5,838	21
Laporte	4,544	16
White	4,158	18

Counties producing the largest average yield per acre, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Wayne	3,275	25
Madison	440	22
Newton	5,838	21
Lake.	14,468	20
Wabash	3,000	20

FLAXSEED.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890.	89,839	12,097	6.8
1889.	78,142	10,640	7.3
1888.	101,693	13,949	7.2
1887.	107,208	14,872	7 2
1886.	153,128	18,268	8.3
1885.	132,181	17,767	7.4

The principal flaxseed-producing counties of the State, 1890 :

COUNTY.	Number of Bushels.	Average Bushels per Acre.
Wayne	9,592	8
Randolph	9,248	8
Wells	9,152	8
Grant	6,025	7
Wabash	5,680	8

The Year 1889.

The principal flaxseed-producing counties of the State, 1889:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Wayne	11,935	7
Huntington	6,615	7
Wells	6,472	8
Allen	5,787	9
Adams	4,950	9

Counties producing the largest number of bushels to the acre, 1889:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Clay	1,133	11
Jennings	1,340	10
Greene	280	10
Knox	180	10
Jasper	160	10

CLOVER AND TIMOTHY SEED.

COMPARATIVE YIELD.

YEAR.	Clover, Bushels.	Timothy, Bushels.
1890	265,924	39,081
1889	253,728	33,449
1888	295,505	41,881
1887	261,284	43,515
1886	216,515	45,944
1885	237,279	47,535

Counties in the State producing the largest yield of clover and timothy seed, 1890:

COUNTY.	Bushels, Clover.	COUNTY.	Bushels, Clover.
Noble	14,085	Allen.	3,582
Dekalb	9,128	Bartholomew.	1,527
Allen	7,663	Greene	1,510
Fulton	6,363	Jasper	1,386
St. Joseph	6,331	Washington	1,246

The Year 1889.

Counties in the State producing the largest yield of clover and timothy seed, 1889.

COUNTY.	Bushels, Clover.	COUNTY.	Bushels, Timothy.
Noble.	12,202	Allen	3,106
Dekalb	8,243	Greene	1,897
Whitley	7,847	Washington	1,841
Fulton	7,228	Jasper	1,726
Allen	6,765	Bartholomew.	1,125

CLOVER HAY.

COMPARATIVE YIELD.

YEAR.	Tons.	Acres.	Average Tons per Acre.
1890.	2,057,188	1,196,040	1.7
1889.	2,349,528	1,174,764	2
1888.	1,311,450	1,061,846	1.2
1887.	1,728,776	1,121,314	1.5
1886.	1,770,528	1,075,717	1.6
1885.	1,662,277	1,042,759	1.6
1884.	1,501,860	908,238	1.6
1883.	1,628,519	939,615	1.7

Counties in the State producing the largest amount of clover hay, 1890:

COUNTY.	Number of Tons.	Average Tons per Acre.
Elkhart	53,914	2
Randolph	53,566	2
Allen	51,274	2
Henry	50,152	2
Wabash	46,667	2

NOTE.—Many counties produced two tons to the acre, which was the highest average per acre.

The Year 1889.

Counties producing the largest amount of clover hay, 1889 :

COUNTY.	Tons Pro- duced.	Average Tons per Acre.
Randolph	52,462	2
Wabash	51,140	2
Elkhart	50,384	2
Henry	48,168	2
Allen	47,364	2

The counties producing the highest average number of tons of clover hay to the acre are the same as above, and, in fact, almost every county in the State produced two (2) tons to the acre.

TIMOTHY HAY.

COMPARATIVE YIELD.

YEAR.	Tons.	Acres.	Average Tons per Acre.
1890.	2,112,457	1,242,622	1.7
1889.	1,823,047	1,215,365	1.5
1888.	1,548,888	1,237,417	1.2
1887.	1,543,558	1,269,870	1.2
1886.	1,770,528	1,075,717	1.6
1885.	1,944,946	1,374,352	1.4
1884.	1,946,342	1,247,099	1.5
1883.	1,831,137	1,167,323	1.6
1882.	1,599,949	984,982	1.6
1881.	1,303,217	988,560	1.2
1880.	1,221,164	795,438	1.5

Counties producing the largest amount of timothy hay, 1890:

COUNTY.	Tons Produced.	Average Tons per Acre.
Jasper	51,192	2
Greene	48,312	2
Lake	46,281	1.7
Ripley	44,848	1.5
Clay	44,348	2

NOTE.—Almost half the counties in the State averaged two tons to the acre, which was the highest average.

The Year 1889.

The principal timothy hay-producing counties, 1889:

COUNTY.	Tons Produced.	Average Tons per Acre.
Lake	38,634	1.5
Owen	38,436	1.7
Benton	35,935	1.5
Porter	34,387	1.5
Allen	34,074	1.5

Counties producing the largest average number of tons of timothy hay to the acre, 1889:

COUNTY.	Tons Produced.	Average Tons per Acre.
Hendricks	27,906	2
Adams	26,910	2
Elkhart	26,494	2
Dubois	26,036	2
Franklin	25,326	2

IRISH POTATOES.
COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890	2,688,875	80,747	33.3
1889	7,783,267	79,213	98.2
1888	5,480,960	76,148	71.9
1887	2,216,130	77,306	28.6
1886	5,392,021	72,055	74.8
1885	5,801,524	74,434	77.9

The principal Irish potato producing counties of the State, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Allen	131,130	31
Marion.	127,743	33
Ohio	87,600	120
Spencer	82,230	30
Vanderburgh	80,289	47

Counties producing the largest average number of bushels per acre, 1890 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Ohio	87,600	120
Dekalb.	66,480	60
Warren.	21,344	58
Porter	70,900	50
Vanderburgh	80,289	47

The Year 1889.

Counties in the State having the largest production of Irish potatoes, 1889 :

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Allen.	273,768	88
Vanderburgh.	271,500	150
Elkhart	251,440	140
St. Joseph	219,135	105
Warrick	215,160	110

Counties producing the largest average number of bushels to the acre, 1889:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Vanderburgh	271,500	150
Adams	114,900	150
Kosciusko	206,847	141
Elkhart	251,440	140
Huntington	139,896	134

SWEET POTATOES.

COMPARATIVE YIELD.

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1890.	158,700	2,645	60
1889.	194,040	2,772	70
1888.	234,832	3,272	71
1887.	167,387	3,214	52
1886.	222,390	3,003	74
1885.	183,928	2,552	72

The principal Sweet potato producing counties, 1890:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Marion	18,308	77
Vigo	9,025	55
Wayne	7,540	65
Greene	7,280	104
Jefferson	7,000	125

Counties producing the largest average number of bushels per acre, 1890:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Jefferson	7,000	125
Crawford	868	124
Jennings	2,376	108
Greene	7,280	104
Jackson	1,616	101

The Year 1889.

The principal sweet-potato producing counties of the State, 1889:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Marion.	15,300	68
Knox	11,500	115
Gibson	11,150	115
St. Joseph	9,900	75
Vanderburgh	9,400	100

Counties in the State producing the largest number of bushels to the acre, 1889:

COUNTY.	Bushels Produced.	Average Bushels per Acre.
Floyd	6,475	175
Fulton	1,200	150
Orange.	1,596	133
Jennings	3,375	125
Knox	11,500	115

MILK, BUTTER AND CHEESE.**COMPARATIVE YIELD.**

YEAR.	Milk, Gallons.	Butter, Pounds.	Cheese, Pounds.
1890	157,320,236	34,480,448	532,907
1889	151,365,605	33,246,616	519,838
1888	143,238,050	31,231,415	482,745
1887	156,191,778	33,482,802	621,284
1886	154,182,493	33,133,140	601,815
1885	150,576,993	31,322,617	479,868

Counties in the State producing the largest quantity of milk, butter and cheese 1890:

COUNTY.	Milk, Gallons.	COUNTY.	Butter, Pounds.	COUNTY.	Cheese, Pounds.
Marion.	4,986,744	Marion	836,918	Adams	162,651
Allen	3,593,870	Lake	817,911	Allen	78,632
Lake	3,469,877	Marshall	745,178	Lake	59,994
Porter	3,468,452	Clinton	694,922	Porter	50,015
Laporte	3,119,480	Noble	675,785	Miami	18,983

The Year 1889.

Counties in the State producing the largest quantity of milk, butter and cheese, 1889:

COUNTY.	Milk, Gallons.	COUNTY.	Butter, Pounds.	COUNTY.	Cheese, Pounds.
Marion . . .	4,069,937	Lake . . .	801,410	Adams . . .	150,206
Allen . . .	3,569,947	Marion . . .	725,617	Allen . . .	63,350
Lake . . .	3,257,179	Allen . . .	660,239	Porter . . .	62,775
Porter . . .	3,247,089	Noble . . .	655,009	Lake . . .	57,850
St. Joseph . .	2,961,320	Laporte . . .	617,629	Clark . . .	18,990

HORSES AND MULES.

YEAR.	Total No. Horses in State.	Total No. Mules in State.
1890	602,361	52,856
1889	593,275	62,426
1888	585,707	60,165
1887	533,257	56,989
1886	513,970	57,283
1885	512,394	57,739

Counties in the State having the largest number of horses and mules, 1890:

COUNTY.	No. Horses.	COUNTY.	No. Mules.
Marion	12,647	Marion	3,561
Allen	11,457	Vanderburgh	2,883
Elkhart	10,482	Posey	2,199
Tippecanoe	10,431	Gibson	1,932
Hamilton	10,297	Jackson	1,637

Counties in the State having the largest number of horses and mules, 1889:

COUNTY.	No. Horses.	COUNTY.	No. Mules.
Marion	11,701	Marion	3,129
Allen	11,165	Vanderburgh	2,426
Tippecanoe	10,305	Gibson	1,946
Elkhart	10,304	Jackson	1,873
Hamilton	10,208	Posey	1,831

CATTLE AND HOGS.

YEAR.	Total No. of Cattle in State.	Total No. of Fatted Hogs in State.
1890	1,426,888	2,225,870
1889	1,420,891	2,211,157
1888	1,360,399	2,057,210
1887	1,303,150	2,196,068
1886	1,251,428	1,761,529
1885	1,183,365	1,698,585

NOTE.—Stock hogs are not included in the above totals.

Counties having the largest number of cattle and hogs, 1890:

COUNTY.	Number Cattle.	COUNTY.	Number Hogs.
Allen	27,743	Montgomery	91,780
Putnam	25,908	Randolph	84,912
Montgomery	24,098	Hendricks	84,707
Laporte	23,988	Hamilton	82,762
Jasper	23,351	Grant	82,481

The Year 1889.

Counties having the largest number of cattle and hogs, 1889:

COUNTY.	Number Cattle.	COUNTY.	Number Hogs.
Allen	27,896	Montgomery	93,407
Putnam	26,035	Hendricks	85,866
Montgomery	25,010	Randolph	83,149
Laporte	23,053	Hamilton	81,765
Marion	22,383	Rush	78,570

NOTE.—In the above totals are included milch cows and stock hogs.

SHEEP AND LAMBS.

YEAR.	Total in State.	Average to Square Mile.
1890	934,741	25
1889	954,458	26
1888	1,266,109	35
1887	1,394,045	38
1886	1,401,612	38
1885	1,295,495	36
1884	1,508,713	42
1883	1,497,362	41

Counties in the State having the largest number of sheep and lambs, 1890 :

COUNTY.	Total Number.	Average to Square Mile.
Lagrange.	31,118	79
Elkhart	30,993	66
Steuben	28,889	86
Noble	26,405	63
Owen	26,193	66

Counties in the State producing the largest number of sheep and lambs, 1889 :

COUNTY.	Total Number.	Average to Square Mile.
Elkhart	30,734	65
Lagrange.	30,548	78
Steuben	28,475	86
Noble	26,323	62
Owen	25,299	64

DEATH OF DOMESTIC ANIMALS.

Statement Showing the Number of Sheep Killed by Dogs, and Death of Cattle, Hogs, Horses and Mules During the Years 1888, 1889 and 1890.

COUNTIES.	NUMBER OF SHEEP KILLED BY DOGS.			NUMBER OF CATTLE DYING.			NUMBER OF HORSES DYING.			NUMBER OF HOGS DYING.			NUMBER OF MULES DYING.		
	1890.	1889.	1888.	1890.	1889.	1888.	1890.	1889.	1888.	1890.	1889.	1888.	1890.	1889.	1888.
Adams	229	181	296	226	267	250	174	157	190	4,183	3,030	4,513	5	2	6
Allen	834	509	401	516	506	619	367	539	335	3,030	3,768	4,600	6	6	8
Bartholomew	502	578	776	394	413	383	192	174	150	2,175	2,232	4,396	50	47	43
Benton	47	65	116	292	270	239	269	260	238	2,480	1,423	2,284	12	16	5
Blackford	62	290	227	44	92	77	51	48	87	537	. . . .	3,562	8	3	. . . .
Boone	117	337	168	290	415	396	226	268	151	4,976	6,231	9,531	10	13	2
Brown	158	156	106	162	52	86	17	20	48	118	163	538	7	19	12
Carroll	318	313	284	430	403	396	170	182	222	4,516	4,799	4,848	9	10	4
Cass	298	348	453	307	314	339	264	196	200	3,890	3,716	3,735	19	12	4
Clark	170	397	378	239	274	363	183	173	123	1,213	1,341	1,920	21	15	18
Clay	229	163	145	320	344	414	133	162	119	1,608	1,555	1,822	10	42	29
Clinton	275	412	800	344	332	302	217	216	221	2,950	3,380	3,345	15	12	1
Crawford	48	42	80	82	83	90	32	27	223	120	86	390	13	16	10
Davless	338	352	231	266	183	259	196	168	196	1,680	1,493	8,149	19	10	19
Dearborn	180	186	169	167	153	108	111	118	138	583	863	922	17	10	19
Decatur	287	109	220	288	371	314	252	240	178	7,638	8,322	3,320	29	29	17
Dekalb	279	336	316	171	150	181	161	125	127	1,216	1,152	1,320	7	5	. . . .
Delaware	497	632	509	389	321	371	294	286	338	5,455	5,488	7,545	8	12	14
Dubois	175	188	224	154	296	320	98	79	105	2,599	3,566	2,691	19	29	20
Elkhart	398	501	671	361	346	94	121	87	92	1,682	1,841	5,102	5	8	7
Fayette	126	132	189	152	124	85	154	158	155	2,115	2,245	2,919	13	16	5
Floyd	24	38	60	83	73	70	42	82	45	71	133	125	6	5	15
Fountain	875	827	707	209	223	278	230	236	148	1,608	1,451	3,570	11	10	10
Franklin	270	287	400	321	277	275	216	217	195	8,250	9,159	5,387	11	13	21
Fulton	582	232	517	456	359	310	200	168	165	2,680	4,227	4,231	11	10	5

DEATH OF DOMESTIC ANIMALS—Continued.

COUNTIES.	NUMBER OF SHEEP KILLED BY DOGS.			NUMBER OF CATTLE DYING.			NUMBER OF HORSES DYING.			NUMBER OF HOGS DYING.			NUMBER OF MULES DYING.		
	1890.	1889.	1888.	1890.	1889.	1888.	1890.	1889.	1888.	1890.	1889.	1888.	1890.	1889.	1888.
Gibson	456	461	673	450	372	320	248	211	201	6,730	5,816	10,057	27	40	97
Grant	285	259	299	438	320	382	301	294	248	2,875	2,245	8,456	12	14	11
Greene	850	1,076	923	622	451	513	363	458	190	3,255	2,064	2,530	28	22	20
Hamilton	384	354	441	216	201	260	237	264	202	3,180	3,644	4,820	18	15	9
Hancock	278	245	233	283	237	240	214	236	321	4,122	4,331	3,386	11	10	. . . .
Harrison	384	436	451	208	223	205	233	245	261	1,130	1,049	1,453	13	10	10
Hendricks	692	657	868	275	261	281	132	173	208	3,110	2,973	4,598	17	30	30
Henry	283	351	166	341	294	284	291	274	300	6,940	6,667	8,570	7	13	3
Howard	159	134	140	247	238	309	271	260	182	2,870	3,664	6,871	12	7	3
Huntington	308	267	188	475	262	315	334	315	247	3,866	4,477	6,385	5	4	12
Jackson	284	288	436	284	269	278	129	130	124	2,108	1,804	2,682	31	27	85
Jasper	58	61	80	624	510	516	253	257	198	651	472	677	9	10	4
Jay	221	246	307	262	303	303	191	216	102	2,269	2,780	3,592	7	10	4
Jefferson	100	79	129	91	92	67	50	55	54	421	341	664	13	16	2
Jennings	264	254	176	201	210	271	129	135	162	891	1,010	1,196	14	12	7
Johnson	307	310	236	248	267	285	230	255	178	4,116	3,107	3,685	4	11	8
Knox	377	358	551	235	314	372	300	340	279	8,903	7,915	9,611	32	27	27
Kosciusko	672	213	282	345	302	377	304	263	127	2,255	2,324	2,679	9	6	10
Lagrange	154	161	143	119	152	164	140	121	125	1,457	1,288	1,017	1	2	1
Lake	83	71	64	320	242	276	257	188	180	890	683	713	5	4	4
Laporte	262	166	94	246	348	375	508	529	321	1,820	1,573	4,811	15	8	3
Lawrence	432	407	277	258	237	233	184	183	159	974	2,023	1,798	11	17	12
Madison	535	314	264	317	272	202	256	251	225	6,294	4,017	5,371	9	10	11
Marion	288	366	283	365	354	310	218	190	375	2,625	2,049	7,540	22	14	. . . .
Marshall	477	375	478	415	257	307	223	213	171	5,628	4,717	4,458	8	7	5
Martin	275	307	239	166	149	183	174	113	108	1,376	1,236	1,996	16	6	18
Miami	168	84	158	392	345	238	199	220	224	2,748	4,704	9,973	5	7	5
Monroe	258	201	268	138	137	187	81	97	90	371	347	930	9	14	6
Montgomery	278	371	370	403	418	309	251	278	398	5,948	5,854	11,950	11	11	15
Morgan	175	186	195	268	235	238	202	197	193	1,865	1,768	2,332	14	12	18

DEATH OF DOMESTIC ANIMALS.

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Newton	75	81	267	276	273	302	210	128	143	970	1,056	375	8	13	
Noble	289	150	175	149	197	224	171	194	154	3,001	2,767	2,804	7	6	
Ohio	32	14	84	35	37	51	16	30	21	83	79	118	5	7	
Orange	223	256	290	165	157	195	93	86	153	656	396	1,649	12	11	8
Owen	272	370	482	341	344	308	150	159	41	1,509	1,281	2,999	18	9	
Parke	325	282	309	251	246	205	152	176	197	1,080	1,427	2,483	12	14	13
Perry	153	242	197	231	216	232	134	103	125	714	816	1,404	14	16	15
Pike	409	306	482	308	321	312	115	145	174	1,950	1,822	3,124	12	28	17
Porter	175	162	253	297	234	211	121	113	87	217	246	519	4	9	2
Posey	89	103	197	218	215	200	207	180	121	4,560	2,539	3,502	58	43	27
Pulaski	287	317	482	225	228	216	131	168	146	425	1,020	512	12	13	6
Putnam	318	325	390	482	372	351	210	230	205	1,890	1,722	3,762	15	12	12
Randolph	282	265	203	516	349	356	306	253	281	10,970	11,702	7,510	16	9	9
Ripley	202	200	156	153	163	210	76	77	384	633	674	669	10	10	13
Rush	118	130	199	265	302	280	307	302	340	4,860	5,459	7,450	13	8	
Scott	74	156	207	68	66	126	37	31	57	384	308	316	17	19	8
Shelby	162	146	235	321	322	397	317	314	330	4,552	2,556	3,748	12	17	11
Spencer	138	207	212	138	153	274	202	184	194	2,550	2,215	1,687	24	26	22
Starke	38	42	106	165	180	285	96	85	64	243	416	914	5	4	3
Steuben	188	207	132	97	104	94	105	94	99	2,550	1,286	709	7	4	1
St. Joseph	564	584	433	261	270	265	240	261	215	1,670	1,550	3,592	12	7	2
Sullivan	483	466	638	967	355	361	217	270	275	4,160	3,857	4,670	11	10	3
Switzerland	163	166	246	83	87	72	93	56	102	117	116	235	12	16	7
Tippecanoe	251	280	345	318	320	389	386	434	315	4,070	3,373	4,302	16	12	10
Tipton	263	291	432	162	168	250	136	151	187	4,080	2,067	2,806	13	15	5
Union	71	76	166	98	94	84	30	33	45	1,920	2,446	3,859	8	3	3
Vanderburgh	142	192	257	156	183	171	142	97	112	3,020	2,528	1,362	44	47	54
Vermillion	77	116	186	283	353	207	159	143	158	2,018	1,284	1,893	8	11	8
Vigo	314	540	423	322	322	344	286	311	298	3,456	1,982	2,491	24	26	13
Wabash	518	512	827	317	303	373	201	219	213	5,890	6,654	7,152	17	16	2
Warren	262	162	199	315	323	377	197	170	179	832	1,109	3,440	18	13	4
Warrick	175	251	501	138	236	281	222	253	124	6,513	1,386	1,874	27	42	23
Washington	330	252	432	241	126	214	184	171	80	1,880	828	933	15	13	13
Wayne	439	741	538	401	275	338	233	290	267	11,074	11,598	10,801	14	12	5
Wells	248	393	584	226	206	250	225	169	168	5,181	3,858	6,141	12	9	4
White	193	182	136	338	346	379	328	256	204	1,024	973	1,517	11	11	9
Whitley	297	364	444	196	191	335	138	163	134	2,901	2,832	2,751	6	8	2
Total	25,713	25,248	28,850	24,901	23,627	24,768	17,885	17,652	16,004	256,991	247,114	326,359	1,293	1,298	1,084

FENCING AND DRAIN TILE.

Statement Showing by Counties the Number of Rods of Rail, Board and Wire Fencing Erected in 1890 and the number of Rods of Drain Tile Laid and in Operation in the Same Period.

COUNTIES.	Rods of Rail Fencing Erected in 1890.	Rods of Board Fencing Erected in 1890.	Rods of Wire Fencing Erected in 1890.	Rods of Drain Tile Laid in 1890.	Total Rods Drain Tile in Operat'n in 1890.	Total Rods Drain Tile in Operat'n in 1889.
Adams	30,608	7,790	2,444	72,459	594,563	522,104
Allen	16,944	13,721	14,008	78,996	693,080	619,094
Bartholomew	8,756	2,087	3,963	9,441	432,236	422,795
Benton	608	2,561	13,511	83,238	521,402	438,164
Blackford	4,900	1,770	2,350	32,697	330,365	297,668
Boone	22,678	5,969	9,230	61,719	929,547	867,828
Brown	13,388	893	1,944	127	8,776	8,649
Carroll	30,774	11,771	14,964	30,721	511,347	480,626
Cass	31,563	8,394	20,532	49,109	610,071	560,962
Clark	6,224	2,675	8,980	1,292	15,864	14,572
Clay	20,231	10,289	7,150	2,202	18,816	16,614
Clinton	15,462	8,404	8,776	85,778	1,098,124	1,012,346
Crawford	20,560	1,885	1,983	160	950	790
Davies	21,649	2,914	4,742	8,238	95,744	87,506
Dearborn	22,485	4,788	12,839	340	5,518	5,178
Decatur	16,493	3,352	13,414	34,991	849,559	814,568
Dekalb	54,900	5,695	10,411	34,827	309,823	274,996
Delaware	27,203	5,595	9,857	49,364	557,963	508,599
Dubois	41,407	3,380	1,826	3,145	13,550	10,405
Elkhart	55,247	14,572	29,325	51,107	363,980	312,973
Fayette	28,763	11,976	9,404	5,751	139,309	133,558
Floyd	2,407	1,112	4,923	538	17,547	17,009
Fountain	30,756	13,871	12,979	27,744	427,746	399,996
Franklin	73,080	5,064	10,738	4,680	296,193	291,513
Fulton	14,115	11,738	20,654	21,527	196,624	175,097
Gibson	22,405	18,511	27,357	6,095	245,137	239,042
Grant	19,215	6,318	11,757	82,630	988,428	905,798
Greene	34,343	18,751	12,946	8,434	62,410	53,976
Hamilton	13,878	9,447	7,586	24,781	808,744	783,963
Hancock	9,373	3,107	14,918	30,751	706,032	675,281
Harrison	23,796	5,635	3,882	268	4,061	3,793
Hendricks	11,917	5,751	8,971	22,744	570,909	548,165
Henry	17,697	11,469	30,520	36,883	655,460	618,577
Howard	18,741	9,876	12,444	24,781	727,772	702,991
Huntington	16,605	6,526	23,213	55,106	662,804	607,798
Jackson	29,744	13,721	11,844	5,973	47,980	42,007
Jasper	9,904	6,780	35,071	21,549	80,906	59,357
Jay	22,434	5,713	7,177	36,535	588,113	551,518
Jefferson	26,641	6,180	6,944	635	5,511	4,876
Jennings	11,847	5,107	8,756	3,871	26,390	22,519

FENCING AND DRAIN TILE—Continued.

COUNTIES.	Rods of Rail Fencing Erected in 1890.	Rods of Board Fencing Erected in 1890.	Rods of Wire Fencing Erected in 1890.	Rods of Drain Tile Laid in 1890.	Total Rods Drain Tile in Operat'n in 1890.	Total Rods Drain Tile in Operat'n in 1889.
Johnson	12,507	8,565	15,118	18,749	474,509	455,760
Knox	27,343	11,711	15,620	14,348	104,886	90,538
Kosciusko	29,415	7,075	20,833	40,717	309,423	268,706
Lagrange	7,860	2,567	8,513	3,979	45,805	41,826
Lake	1,763	3,484	33,784	9,871	46,180	36,309
Laporte	18,046	12,524	27,004	8,887	34,766	25,879
Lawrence	9,410	3,259	4,562	236	7,636	7,400
Madison	13,738	6,638	5,137	35,189	628,857	593,668
Marion	20,747	9,636	21,744	13,718	774,276	760,558
Marshall	16,874	9,486	17,647	22,784	203,494	180,710
Martin	52,746	3,768	4,986	1,684	15,595	13,911
Miami	15,087	4,233	13,544	54,350	664,030	609,680
Monroe	23,694	7,997	3,255	2,282	17,640	15,358
Montgomery	32,615	5,581	14,447	46,846	577,167	530,321
Morgan	31,786	9,471	12,196	11,841	223,547	211,706
Newton	572	1,129	15,372	32,625	165,364	132,739
Noble	22,699	7,303	11,163	22,783	213,274	190,491
Ohio	2,199	535	4,503		375	375
Orange	12,574	6,949	5,675	293	8,190	7,897
Owen	19,265	3,949	5,593	1,362	9,246	7,884
Parke	29,792	7,781	11,511	9,247	214,769	205,522
Perry	28,744	5,771	5,700	127	1,933	1,806
Pike	7,206	5,058	11,654	1,292	12,923	11,631
Porter	11,221	7,911	8,079	4,362	19,881	15,519
Posey	12,349	3,635	19,775	7,709	219,275	211,566
Pulaski	8,820	3,153	24,214	9,703	91,735	82,032
Putnam	27,867	9,817	11,486	13,742	201,412	187,670
Randolph	21,865	9,203	24,316	57,048	961,193	904,145
Ripley	27,232	7,091	9,381	3,214	60,445	57,231
Rush	23,714	6,884	11,916	22,711	795,765	773,054
Scott	3,875	2,240	5,930	5,653	58,226	52,573
Shelby	12,574	9,762	14,187	13,278	715,791	702,513
Spencer	14,738	6,309	5,852	1,991	33,638	31,647
Starke	3,075	2,365	13,867	490	10,346	9,856
Steuben	19,353	8,132	13,791	25,764	173,799	148,035
St. Joseph	17,441	11,874	25,744	12,964	141,536	128,572
Sullivan	20,021	3,741	16,984	3,722	55,100	51,378
Switzerland	5,336	910	8,539	98	2,788	2,690
Tippecanoe	15,520	12,740	14,114	49,353	509,318	459,965
Tipton	21,746	6,847	7,847	31,784	557,836	526,052
Union	846	3,721	6,944	7,211	230,964	223,753
Vanderburgh	1,883	1,875	7,740	5,735	110,294	104,559
Vermillion	17,180	6,221	9,897	8,815	191,188	182,373
Vigo	13,066	15,577	21,575	11,806	59,760	47,954
Wabash	17,847	9,711	15,684	27,477	910,700	883,223
Warren	3,438	4,665	7,915	28,175	227,622	198,847
Warrick	24,091	7,287	6,645	4,424	85,219	80,795
Washington	30,276	6,918	7,161	1,484	24,135	22,651
Wayne	32,567	8,962	23,102	17,117	398,062	380,945
Wells	24,492	7,550	10,504	92,033	899,920	807,887
White	19,719	8,746	37,841	42,246	186,638	144,392
Whitley	18,207	8,714	12,840	30,951	263,679	232,728
Total	1,806,670	632,059	967,854	2,005,497	28,173,938	26,168,441

TROTTING AND PACING HORSE-BREEDERS.

The Seventh Annual Convention of the Indiana Trotting and Pacing Horse-Breeders' Association met in the Agricultural rooms, State House, at 2 o'clock P. M., and was called to order by the President, Chas. E. Wright.

Roll-call showed but few members present. The minutes of last annual meeting were read and approved. The reports of the Secretary and Treasurer were read and accepted.

President Wright delivered his annual address, as follows:

PRESIDENT'S ADDRESS.

GENTLEMEN—The year ending December 31, 1889, found our State in possession of the stallion record and the stallion that made it. He is still with us, although dethroned as Stallion King, and has added much wealth to Indiana. The year just past was fruitful of record-breaking, and as usual Indiana was "in it." The double team record was twice broken, once within the confines of our own State. The horse from Maine, Nelson, had to come to Indiana for the crown which now graces his brow—that is, if horses have brows, and if they wear crowns. Is it not strange that our people do not know their own advantages, and do not assert them to the world as do the citizens of other States? A homely saying, certainly not classic, but which contains as much wisdom as many clothed in Latin and used by writers who wish to appear learned is: "Who bloweth not his own horn, the same shall not be *blowed*." If Hoosiers do not make known their own rightful claims to superior advantages in agriculture and stock raising, the same shall be passed by unknown. Is it not strange that Indiana should possess such advantages of *climate* that she can compete with the much lauded California? Had the record of Nelson been made in California, it would probably have been attributed to some extent to the glorious "climate" of that State. If Nelson had been the descendant of a Kentucky horse, then the "climate" would no doubt have been referred to as contributing to his speed and development, or the *blue grass*, which is *not* inclusively indigenous to that State, but grows with equal luxuriance here, and of as good quality and a greater quantity.

Did it ever strike the average Hoosier horseman that a great deal of humbuggery in regard to horse breeding has been foisted upon the public, and is tacitly admitted as true when the contrary is the fact? The Hoosier has been taught to grant without question the claim of superiority made by citizens of other States. Not only do our own people deceive themselves, but all over the country we find

the same delusion existing. The citizens of the Empire State leave the home of Rysdyk's Hambletonian and his sons—most potent producers of speed; the badgers of Michigan leave the State where Jack was raised, and where equally as good horses at reasonable prices can now be found, to hie them to the Corn-Cracker State to pay a sky-high price for some crippled cull at a combination sale. Do not understand me to say that crippled culls are exposed to purchase in combination sales, for in them, undoubtedly, are many good and sound animals disposed of. But the owner who can sell his colts for good prices at private sale, is not likely to expose his property to the uncertainties of public auction, unless it may be a closing-out sale; nor do I intend to reflect upon the character of those who conduct these sales, for doubtless, many good and true men are so engaged. What I have said must be taken as spoken and without misconstruction.

Is it not strange, too, that Indiana can furnish food and water, as well as climate, to the horses that have to come here to take advantage of our mile tracks on which to make their records? I sincerely hope that no one will consider that this question has any reference to the track at Indianapolis. If horses are so extremely delicate, not to say "finicky" (either they or their owners) that they must have their native hay to eat, or some particular brand of water to drink when campaigning the trotting track, thus necessitating increased trouble and outlay of money, when they come here this annoyance is avoided. We have enough of food and drink for the horses of two or three States. Sunol need not bring her grip-sack full of alfalfa, nor Nelson his trunk full of pine needles, if these are his accustomed food, for we have good water of all styles and varieties suited to the equine taste, and our grains and forage are equaled by few and excelled by none in the world. Do not our food supply, railroad facilities, proximity to the principal tracks, our climate, and our excellent race-courses contribute toward making our State one of, if not the best place in the country, in which to winter and condition horses for campaigning? Is not this fact being better and better recognized and advantage taken of it by the best trainers in the country? Indiana-bred and Indiana-conditioned horses can start out in the spring and stay until the close of the season, with the best in the land. They are hearty, and can eat the food and use the water that any other horse can digest or drink.

Another record of decided interest to us was broken. Within the last twelve months, the Indiana Trotting and Pacing Horse Breeders' Association has not gone into debt. Much of the credit, however, belongs to our Vigo County friends, who came forward with helping hands when our poor association was so enfeebled from neglect, and want of proper nourishment, that its demise seemed only the question of a few days or months. While we have not increased the indebtedness of the society, yet its condition is far from being satisfactory, and it remains for the members at this meeting to reorganize it on a better plan. Last January I told you that we needed unity of purpose among breeders, and more united work. We need to place this association upon a business-like basis, and fulfill our contracts like men. We should take more interest in the success of our society, and work in harmony for each other's interest. What I said to you then, I now reiterate and declare to you that the time is ripe for an entire change in the organization and its

plan of management. We should not abandon all organization, as some seem inclined to do, and allow its untimely and ignominious death without at least one powerful effort to prevent such a catastrophe to the economy of the State.

Permit me for one moment to attract your attention to the money value at stake, and in which you and I and others are interested.

In 1889, as shown by the figures given by the State Statistician, there were in Indiana 593,275 horses. If these horses are valued at fifty dollars each, which is certainly not out of the way, their value would be \$29,663,759. In 1890, the number of horses increased to 602,361, which at the same per capita valuation, would be worth \$30,118,050, an increase over the preceding year of \$1,454,300. In 1889, there were 2,099,980 acres of blue and other wild grasses. In 1890, the average of the same was 2,175,000, an increase of 75,020 acres. The grains and hay are not all used for horses; but showing that we have plenty of food, it may be mentioned that in 1887, there were raised of clover and timothy hay, 3,272,334 tons; in 1888, 2,860,338 tons; in 1889, 4,172,575 tons; in 1890, 4,169,645 tons. At \$10 per ton, the amount looms up astonishingly. Of oats, there were raised in 1887, 24,378,984 bushels; in 1888, 27,493,851 bushels; in 1889, 28,710,935 bushels; in 1890, 15,566,207 bushels. At fifty cents per bushel the oats raised in 1890 would be worth \$7,783,103.56. In 1887, 70,017,604 bushels of corn were raised; in 1888, 128,436,284 bushels; in 1889, 106,542,161 bushels; in 1890, 87,092,513 bushels, which, at fifty cents, would be worth \$43,546,256.50.

There is more than a money consideration at stake also. The pleasure alone of successful horse breeding should stimulate us to renewed efforts. Too much attention has been paid to the purses and stakes, and too little to the literary feature, which is of right an integral part of such associations and meetings. I have been informed by some who have been connected with the organization since its inception, that last year was the first that any attention whatever was paid to the presentation of essays. All of the State agricultural associations, with not even one-fourth or even one-tenth of the moneyed interest at stake, furnished much interesting and valuable literary work at their annual meetings. We need a live State association, as has been pointed out by the able editor of the *Western Sportsman*, in a recent editorial—one that can compete with similar organizations in other States of no more importance than our own. We need a National Association of Horse Breeders, which will truly represent the interests of horse-breeders of all of the States of the Union. This should be a delegate body with representatives from all of the State Associations, to whom questions of difference could be referred for arbitration, which should have proper supervision of breeding, racing, registration, etc., of all the breeds of horses. Who will start the ball rolling by issuing a call for such a meeting? Who will take the initiative step? Why not this association? But before we do anything of this kind let us shake off the shackles of indolence that now bind us. Let us now form an association that, phoenix-like, shall rise from the ashes of the present aggregation of indifference. Let us forsake the chrysalis of the old society, and, like the butterfly, awaken to the joys, the brightness and the activity of a new life.

PROCEEDINGS.

The finances of the Association are in a bad condition, with several very large debts hanging over it. It was moved and carried that the Association prorate the money on hand between the outside debtors, and wind up the affairs of the same. The President, Treasurer and Secretary, with M. L. Hare, were appointed a committee to attend to the matter.

Mr. Bruce Carr then offered a plan for reorganization, which was adopted, and By-Laws and Rules were made, the name of the same to be "The Indiana Horse Breeders' Association." The capital stock of the Association was fixed at \$50,000, with shares of \$25 each.

Resolved, That when \$5 000, or two hundred shares, shall be subscribed the subscription shall be binding.

The following named gentlemen were then named as Directors for one year: Chas. E. Wright, Dr. Neal, Bruce Carr, M. L. Hare, H. F. Wood, Indianapolis; E. V. Mitchell, Martinsville; Frank McKeen, Terre Haute; H. L. Covod, Noblesville; John S. Lackey, Cambridge City; John Morgan, Plainfield; J. W. Dickerson, city.

Adjourned to meet at Grand Hotel, February 11, 1891.

SHORTHORN BREEDERS.

The twentieth annual meeting of the State Shorthorn Breeders' Association met in the lecture room of the State Board of Agriculture, State House, January 20, 1891, at 1:30 P. M., and was called to order by the President, Judge J. S. Buckles, of Muncie.

In the absence of the Secretary, Joshua Strange, of Grant County, was selected to fill the vacancy.

Judge Buckles. I see the President's address is first on the programme. I will state, in this connection, that my time has been so fully occupied that I have not prepared an address, and would ask the Association to excuse me. We will now proceed with the published programme.

Dr. N. D. Gaddy, of Lovett, Ind., read a paper on:

"WHICH IS THE BETTER TO USE, AN AGED OR YOUNG BULL?"

As a matter of *convenience*, each breeder may decide the question to suit his circumstances, and need not be discussed here in that light. The question having been selected by the committee last winter, would of itself imply that there is a doubt in the minds of breeders as to the prepotency or impressiveness being more or less in a bull, as a sire, according to his age.

In conversation and in correspondence with breeders the belief that a bull is most impressive at maturity or prime of life, say from four to eight years of his age, is not confined to a few.

The reasoning is that, as like produces like, a bull must be grown to reproduce himself, most certainly.

At first thought this might appear tenable. But thus far I have been unable to find proof that it is true.

Indeed, I think it very fortunate that it is not true. Fortunate for the breeder and fortunate for the cattle as a breed.

There is a decided preference among breeders to buy young bulls. Many of these are sold about the time they are three or four years old, if needs be, to the butcher. Choice ones are kept as long as they live, in many instances.

I have failed to learn that the produce of these aged bulls furnished three classes of excellence each, in their lives, that could be by any breeder or committee so classed, and prove that age of the bull was responsible for the difference which admitted of classification.

No one will affirm that the produce of a bull at any age will be uniformly excellent, regardless of the dams of their calves.

It is a hobby of mine that the spermatozoon may be perfect in a young bull as well as in an old one. That the spermatozoon embraces the germ of the nervous system; of the osseous system, the muscular, lymphatic and vascular systems; the germs of the viscera or organs, including sex, as well as that of the hide, hair, horns and everything when vivified into growth by the maternal influence, becoming in due time a living animal, partaking of the likeness of its progenitors.

Upon the female or dam depends much in molding the form, which may or may not be like herself in one or more peculiarities. This depends upon the growth or development given any particular part or parts of the foetus. The *British Medical Journal*, in giving the transmission of supernumerary fingers by heredity in a certain family, mentions a daughter who transmitted to part of her children this peculiarity.

To my mind this does not prove that the female furnished the additional germ for the supernumerary finger given her child. It is not unreasonable to think that from the germ of the fifth finger a sixth was also forced into growth by the rich pabulum furnished, because of this peculiar hereditary function which she possessed.

Usually a grain of corn sends up but one stalk, but rich ground does not unusually force a growth of a sucker, which develops into an additional stalk.

In this way do I account for form and peculiarities of the dam in her produce. If what may be termed her prepotency is weak, and that of the bull with which she has been coupled is strong, her produce will be much like the bull, and *vice versa*. Thus much depends upon the bull's prepotency, which is not influenced to a noticeable degree by age *per se*. It is just as important to select cows possessing a prepotency in the same direction, so as to have the combined excellence for transmission. The synergistic action of these powers of reproduction of true excellence, possessed by both bull and cow, always tends to improvement.

Then we conclude that the spermatozoon, perfect in all its parts from a young, middle-aged or old bull, is alike susceptible to development into perfect form and excellence.

Fortunately for reproduction the foetus is not easily affected by the privations of the cow during gestation. It is not unusual for a cow to drop a large calf, although the cow is "thin in flesh." As if by instinct, the maternal care is awakened at the beginning of utero-gestation. In other words, all the parts of the foetus receive nourishment for development, but not always in due proportion to the wants of every system or part, the one with the other, owing to some causes not easily explained and to others perhaps well understood. Take two cows, both good individuals and of good family, whose powers of assimilation are equal, and both supplied with good food of proper quality and water *ad libitum*, and otherwise good care, they should and probably would do equally well.

If one of these cows be bred to a young bull, a good individual and of good family, and the other cow bred to an old bull, a good individual also, and from as good a family, I should expect the two expectant calves from these two cows to be equal in development, equal in vigor or strength, and for practical purposes equally good.

But if two other similar cows under the same condition of keeping and care were bred to either one of said bulls, we could not expect the produce to be more than good alike for practical purposes. There would be more or less dissimilarity in all four calves. No two would be exactly alike.

In one respect, everything pertaining to the calf depends upon the bull; and in another respect, everything pertaining to the calf depends upon the cow.

If the seed be sown in fertile soil the harvest is assured. No more can seed wheat produce a good crop without the soil, than the rich soil without the planted seed can produce a bountiful harvest.

As is not unusual, each foot of ground in a field is not equally productive, therefore there would necessarily be a lack of equal productiveness all over the field.

No more could we expect nutrition to be equally furnished to each and every part of the foetus by a cow not *absolutely* perfect in all her parts herself. What is "perfection" to the eye of one breeder is not necessarily so, to that of all other breeders, and herein lies a complication to the breeder's art. I hope that I have made myself understood that the spermatozoon—a perfect seed—whether from a young or old bull is equally good and is susceptible of equal development, provided all things are equal.

There are so many equally important things to be considered in the physiology of breeding, that breeders are liable to fail to understand them; and if understood, some are overlooked and erroneous conclusions are thus arrived at, perhaps hastily.

In the present state of our knowledge there are a great many things in this connection that are conjectural; nor can they be demonstrated by any means known at present. Our knowledge is as extensive perhaps in regard to some of these things as it ever will or can be. It is not known to science, nor can not be known by the closest scrutiny, aided by the most elaborate and scientifically constructed instruments, whether a grain of corn will produce an ear with a certain number of grains nor describe the difference in size and shape of the grains that may be produced.

It is no less impossible to inspect a spermatozoon and ascertain what sex would have been produced; what size; particular shape; whether early maturity would have been reached; whether a show animal would have been produced, or any other quality or attribute desirable by the breeder.

Neither can it be known more certainly what the cow will do in growing the calf, more than we can know what the soil and season may do in growing the grain.

It may be interesting, however, and perhaps instructive to you, to place before you what some of our leading breeders have been kind enough to write me upon the question before us.

B. F. Vanmeter writes: "My opinion is that a young and vigorous bull, one from twenty to twenty-eight months old, which has been raised out of doors,

where he could get plenty of exercise and fresh air and has been allowed to do little or no service, and had plenty of rich food, is the most vigorous beast and will get the *largest* and most fully developed calves."

"In fact," he continues, "it is best to breed such a one, first for a while to aged cows and not to heifers for their first calves."

He further states, "If a young bull gets *fine calves* for his first crop he can be safely relied upon to get as good or better ones to the day of his death or so long as he gets any, *provided* he is not *over-cropped*." "We should not lose sight of the fact that a bull decreases in vigor and breeding capacity as he grows older after he passes his *prime*. A bull in excellent health and vigor can get seventy-five calves in one season, when he is passing twenty to thirty months of age, with as little strain upon his system as a four to five year old bull can get fifty or a seven to eight year old bull can get thirty."

"It depends much more upon the care and use that the bull has than it does upon his age as to the quality and perfection of his get."

"In the above statement you will note the difference between an overgrown calf at birth and one which is just as perfect in form but not so overgrown or large."

Mr. Vanmeter then testifies that calves at birth by young bulls are larger than the get of old bulls are, but that they are really no better in the outcome, if I understand him.

Another Kentucky breeder, Mr. Abram Renick, testifies in the same way. He writes me: "My observation is that there is a difference in the get of old and young bulls, but it is only perceptible at the time of calving. The get of old bulls are not so large, but they develop as well as the get of young animals." I can not understand how age of a bull could make the difference mentioned by these two distinguished gentlemen. I can readily believe that the introduction of a bull bred and raised differently, even largely of the same blood, would get larger calves, especially in cows that had been bred to in-bred bulls also closely related to the cows, the produce in the latter case being small at birth. It would in one sense be a cross, and it is taught that cross-breeds are usually larger than pure or in-bred animals. Some breeders are so thoroughly convinced of the efficacy of new blood that they seek bulls raised far away or under very different conditions, although, of course they want pure-bred animals of their favorite breed.

This gives them cross-breeds between families, if you will allow the illustration, or if of the same family, if they have been differently bred, it will to that degree produce cross-breeds in the same sense, and the calves will be large in some instances, and they will probably grow into larger animals. I have not observed that this obtained more in the get of a young bull than the get of the same bull from the same cows when he grew older.

The only way that I can account for it, if it be a fact that a bull gets larger calves when he is young than when they are got five or ten years later, having been yearly coupled with the same cows, is upon the theory indorsed by many men that a cow impregnated by a bull becomes inoculated with his blood, repeated pregnancies making her more and more like him, which, if continued, would be in one sense in-breeding, from which would occur diminished size.

Mark you, in some cases when the cow is small, hereditarily, and bull is large and from a large family of animals, I suspect that the first calf would not be so large as the second, if this law obtains. The reason of this would be that in the second pregnancy there would be less for his blood to overcome, and the produce, then would be more likely to be large like himself.

But we will now quote from E. S. Frazee, another distinguished breeder. He says: "I think old bulls in their prime and vigor are more apt to get bull calves than young bulls. I think calves from well matured bulls, as a rule, are larger and more vigorous than from young bulls. As to the show qualities, I have observed no difference. I think a bull that is used a great deal, or to excess, is more apt to have feeble and weakly offspring, and more heifer calves among them."

Another breeder and an experienced exhibiter at Fairs, Will. S. Robbins, says: "I don't think I have ever observed any noticeable difference in the size of the get of young and old bulls. But, as a rule, I think the get of an aged bull comes stronger and starts off a little better than that of a young one." He observes that some of his earliest maturing ones were sired by a bull when he was two years old, although, he says: "According to the best principles of breeding, the get of matured animals should mature earliest."

It must be vexing to have "the best principles of breeding" violated before a man's face, and in his own herd, too, that way.

"As to show cattle," he says, "my observation is that most of them were sired by bulls just in their prime—neither old nor young. I don't think there is the difference which many breeders claim; although, other things being equal, I should prefer the offspring of matured animals—both bull and cow. I would consider it poor policy to keep a bull, which, when young, was a poor breeder, with the expectation of his becoming a good breeder when *old*."

I received letters from other breeders, but as the points have been pretty well brought out, I will ask your attention while I read you but one more. William Warfield wrote me as follows:

"Yes sir, the forty-six years I have been breeding cattle I have been a pretty close observer, and I think many things that a great deal of fuss is made over is all fal-de-lal. The trouble is, men—most of them—see things at a distance—are theorists, not practical enough; leave things to their servants; don't do or see to them themselves. And this thing of bulls getting better calves at one or another period of their lives is one of them. One of the very finest heifers I ever bred was gotten by an eight-months' bull calf, out of an eight-months' heifer; and I have now on my farm a heifer calf gotten by a 17-months' bull that is good enough for anybody, and I have seen calves by bulls 14 years old just as good. If you have good blood and good individuals, and take good care of them, the age don't matter. I never could see a bull bred at any particular age breed better or worse. As I say often, so the bull is good and from a good family, and bred on good cows of good family, regardless of age, you will see no difference in his calves at twelve months or fifteen years."

In conclusion, permit me to say that my experience, though not extended through so many years in breeding cattle, is in entire harmony, so far as that experience goes, with that of Mr. Warfield.

I have not observed that age of a bull guarantees earlier maturity, bull calves, heifer calves, or show animals. Theoretically I should expect no difference, and practically I have observed none in the get of bulls of one to twelve years of age.

DISCUSSION.

W. J. Quick, Columbus. The fact that young sires get more calves than aged sires, while this is contrary to the prevailing opinion, it has been my observation that young sires get mostly male calves and are surer breeders. A friend of mine bred to a young bull for two years and nearly every calf was a bull. I used a yearling bull for three years, and the first year all but three were bulls, the second nearly half were bulls, and the third, more bulls than heifers.

J. D. Spahr. The experience I have had with one bull kept from an early age was entirely different. We bred a bull four years in succession to the same cows; the first year he did not get but one bull calf; the next year, two; the third year, two or three, and the fourth year there were about two-thirds bull calves. I do not know as that has any weight, and it is the only experience I have had in this respect.

W. J. Quick. I think there is another matter in connection with this that might be brought out. We all know that a young bull has more animal vigor than an aged one. I do not mean that he is larger and stronger in muscle; an aged bull is stronger in regard to flesh than a young bull, but a young bull has more life and animal vigor, and one reason he has more animal vigor, he has not been spoiled, running out until he is two years old and breeds properly. If he is kept up he gets quiet, and as he becomes less vigorous he gets puny calves, and more heifer calves in consequence. It has a great influence on the sire and I think the young, vigorous animal gets more male calves than an aged.

D. P. Miller. I wish to add my experience in this matter. I have a six-year-old bull. The first year I had him the males predominated—fifteen bulls; but after that it was about half and half. I do not think age has much to do with it, but then he was in the habit of running out and going in the stable at will.

Dr. Gaddy. I think an aged bull, if properly cared for, could get seventy-five calves with as little strain on his system as a young bull could thirty.

J. D. Spahr. If a bull is old, and runs with the herd, he will get more calves than a young one.

E. S. Folsom, Indianapolis. I have had a little experience with an aged bull, say from the age of nine to twelve years. I do not know but that he was as vigorous as any other bull. He had no system of management, and commonly run out summer and winter, with the privilege of going in the stable at night, or whenever he felt disposed through the day. Under that treatment he was as sure as any other bull. I noticed this about the calves—whether age had anything to do with it or not, you can decide—his calves were more uniform than any bull I ever had. You could pick them out in the herd without difficulty. Seemingly they matured

early; before they were two years old they were as good as others two and a half and three years old. Whether age had anything to do with it or not, may be a question yet to decide. The bull was strong, but perhaps the nature of the bull himself might have done the same younger, but certainly that was the result in his aged condition, from nine to twelve years.

Mr. Thompson. I have been breeding an old bull but I have had to use them when quite young and my experience is, as it is the experience of every man, that we must be careful. We can not expect as good a calf from a heifer and a baby bull as we might from an older bull. If we use a twenty to thirty months' bull on seventy-five cows, when they come to mature age they are no account. If we get good calves we must use a less number of calves, but older bulls. The bull gets better as he advances in age; I have used them on from nine years until they die and the last calves were the best I had. I am now using a young bull and am using him very carefully. We can not get a good Shorthorn out of a young cow and young bull. I wish to ask Mr. Miller his experience in relation to having fifteen bull calves. The bull nine years old to which I have alluded, the first three years his calves were nearly all bulls, so much so I had some bulls to sell; afterwards I did not have so many, but he was vigorous and an excellent breeder. For a year or more I did not have a halter on him when a cow was turned in, but let him have freedom. I have seen him lay on the snow instead of going into his stall; he seemed to prefer it and was healthy the year round.

Mr. Miller. I was acquainted with the gentleman of whom I bought him. He had used him to fifteen or twenty cows, and had been well cared for and not allowed to abuse himself, and always had the privilege of going in and out of the shed at will. He was naturally a tame animal, but not very quick to serve a cow. I used him as long as I could and made a mistake when I let him go.

Judge Buckles. My idea is, if I were going to purchase an animal to place at the head of my herd, I would purchase one that had been tried. My actual experience has been this: That when I took a bull and commenced breeding, the first calves he got were not so good as those after he was two and three years old, and better as he advanced in age. My experience is, the longer I have bred to the same bull the better the calves have been if from the same cow. I have an example on my farm of heifers as fine as I ever had. A large portion of my calves last year were females, the exact cause I can not tell. From the little experience I have had in the matter, I would purchase one that had been bred a year or two, that I might know his true merits and if he gave satisfaction I would keep him at the head of the herd.

E. B. Martindale. Mrs. Meredith is now here and I am informed that she desires to leave the city on an early train, and I would like to hear her paper read at this time, if agreeable to the convention.

The Chair. Will you hear Mrs. Meredith's paper and defer the discussion on Dr. Gaddy's paper for the present?

The Convention acquiesced in the request and Mrs. Virginia C. Meredith read a paper on—

"FACTS RELATING TO THE COMBINATION OF THE BEEF AND MILKING QUALITIES OF SHORTHORNS."

There are two important lines upon which to expend the energy of our endeavors as a Shorthorn association, the first, that of improving the taste and judgment of breeders; the second, increasing the sum of information about the breed now possessed by general farmers. My theme has to do with the last named. The beef qualities of the Shorthorn stand unchallenged. The Superior dairy qualities of some Shorthorns is conceded. How far, in what degree the combination of the two is a fact and a success is a matter of much interest to us, because it is a matter of prime importance to those who breed cattle for use and to sell on the general market. That the Shorthorn is a general purpose breed is known to those who own and breed them; that there are breeds which are superlatively butter or milk breeds is an established fact that should be known by every one. It must be remembered that the existence and the excellence of a one-purpose breed does not by any law of analogy or by any legitimate style of logic prove that a two-purpose breed can not exist. We have mutton and wool combined in a satisfactory degree; we have speed and draft combined for the practical purposes of the farm. Why not beef and milk? The claims of the special or one-purpose enthusiasts have been and are too exclusive. Enthusiasm has played an admirable part in securing wonderful results, and no one should wish to diminish in any way the full measure of praise deserved, but it becomes breeders of Shorthorns to present again and again the merits of the breed and to secure for it the attentive regard of the great breeder of cattle, who is and will always be the farmer with from three to twenty cows. His knowledge of the true character of the true Shorthorn is the basis upon which rests the profitable breeding of recorded Shorthorns—the basis upon which rests the profitable keeping of cows upon the farm—and to a very great degree is the basis for the profitable breeding of steers for feeding. If the general farmer is persuaded by any means to believe that a one-purpose breed is best for him he is doomed to sacrifice, ultimately, one-half his opportunity in breeding. Milking capacity and maternity are so intimately related in the cow as to have given rise to the familiar saying "a great milker is a prolific breeder." If a cow is prolific, how much greater will be the profit if all her produce is excellent—if either sex is sure to reach a superior degree of value in its own "sphere"—as steers for beef, as heifers for milk?

The Committee on Programme, in confining your speaker to "*facts*," imposes no unwelcome limitations, because a fact is a fact, whether it be established by one witness, by five hundred, or by none. The modern tendency among breeders of dairy cattle to credit a witness only when under oath may be admirable and necessary within their limits (lines), but surely Shorthorn breeders, having the habit of telling only moderate stories, should be considered trustworthy witnesses without the backing of a notarial seal. Weight and measure under official scrutiny are methods of very recent times, while Shorthorns have been so very good for so long a time that many notable performances at the pail and the churn are in some quarters ruled out because made under the old system when the statement of

a gentleman went unchallenged. Now affidavits, seals and many witnesses scarcely suffice to establish securely some of the wonders of the special or one-purpose breeds.

There has been a modification of the old type of dairy cow. The wedge shape that was formerly insisted upon is not now so much emphasized. To produce great milk and butter the cow must eat a great ration, a great ration requires strong vital powers to secure its complete assimilation, and these can not be crowded into the small end of the wedge. This is an important point gained for the Shorthorn type. The fact has always been as here indicated, but popular apprehension of it has been lacking.

Nine States accepted the proposition of the National Shorthorn Association, and in consequence thirteen hundred dollars was awarded as prizes at these leading fairs for Shorthorn dairy cows. At the Michigan State Fair the sweepstakes prize was won by a Shorthorn cow, Moss Rose 4th, which made two pounds of butter from the milk of one day. She was a winner in a class of eight made up from the different breeds. At the Nebraska State Fair the first prize was won by a cow that gave sixty-one pounds of milk per day. At the New York State Fair first prize was won by Kitty Clay 2d, with forty-two pounds and thirteen ounces of milk, from which was made one pound and eleven ounces of butter. At Washington, Pa., the first prize went to Dolly 2d, giving fifty-two pounds and fifteen ounces of milk. The tests at all the fairs were creditable and compare favorably with those of any other breed.

Messrs. Spencer & Son write me that Fillpail 3d, which made the best Shorthorn public test in 1889, and which gave sixty pounds of milk in one day and eighteen pounds of butter in one week, is the dam of Joe Johnson 98764, now at the head of their herd. They say he is a superior beef animal like his dam, with a marked tendency to take on flesh when opportunity offers. Messrs. Spencer cite the fact that their county—Chautauqua County, N. Y.—is, strictly speaking, a dairy county, and the cattle are principally grade Shorthorns. They are good dairy cattle and as proof that they produce good steers the Chicago market reports, as given in the *Breeders' Gazette*, quote Chautauqua County calves invariably highest.

Mr. Pickrell writes me of his great show cow, Kate Lewis, a winner in closely contested rings, that gave such a large quantity of milk that it was no unusual occurrence for her to give two pails of milk after the calf had nursed. She was the mother of Baron Lewis, illustrated, Vol. 12, A. H. B., which was the first animal bred in Illinois to sell for as much as \$3,000. Some present may remember his presence on our State Fair Grounds. Kate Lewis died with milk fever after giving birth to Baron Lewis. The herd books have many similar records and every breeder has had notable examples in his own herd of the combination of milk and beef qualities. It is to be regretted that greater publicity has not been given to these facts.

The Butter Show, held at Peru last spring, in April, was a notable event in the history of the dairy interests of Indiana. It was the first effort made to have butter graded. It seems remarkable that so just a custom should not have obtained long ago, but without going into that phase of the subject, it may be said that the

exhibition was a fine one, entries large—about sixty, being limited, however, to Miami County—and the quality a very high average. The butter was judged by an expert under conditions of absolute impartiality. Naturally there was much interest in the award, much anxiety upon the part of those championing the various breeds, a great desire by some that silo-fed cows might furnish the prize-winning butter. It was peculiarly gratifying when the award was announced to find that in such strong competition Shorthorn butter had won the prize, and also to learn that it had been made by a farmer's wife, Mrs. Lucas, under the ordinary conditions of the farm, with the ordinary feed of the farm. And as the best butter must always be made on the farm, where the conditions are within the control of an intelligent woman, such an event is encouraging to the women of the farm. The butter of the creamery may yield the best average profit and quality, but the fact that it is an average means that something superior has been degraded in order to grade up something inferior.

The Shorthorn is pre-eminently the farmers' breed, because in it beef and milk are peculiarly combined; in it, beef and milk follow sex as in no other breed in existence. If the breeder of Shorthorns would please his best customer, the farmer, his course seems plain—to sacrifice nothing of the beef quality, but to maintain with it all the dairy quality possible.

DISCUSSION.

Judge E. B. Martindale, Indianapolis. I am not prepared to enter into this question at any length. I will say, however, I approve of the paper, for it contains facts which I think the public ought to know. I believe that the author of the paper can sustain herself in the position taken in regard to the combination of general purpose and dairy qualities in the Shorthorns. I have believed, from observation, when some of our enthusiastic Shorthorn people undertook to place the Shorthorn to the front absolutely without reference to its qualities as a dairy cow, it was a failure. I am glad to know there are so many calves bred up for the premiums and developing an interest in the dairy qualities of the Shorthorns. There are other questions connected with it; as this premium is offered an interest will be taken in it, and the milking quality of the Shorthorn will be regarded and not fall so much into disuse as before. We have been drifting away from the dairy qualities of the Shorthorn and been looking after the show merits, and do not attend to the best milkers. I think this turn that is now being taken will be healthy to the Shorthorn interest. I wish to see this paper published immediately, as it gives statistics and facts on the Shorthorn. I hope this Society will ask its publication, not only in the agricultural papers, but it is an article that should also go into the daily papers, be read, marked and laid away.

R. H. Phillips. On this question which Mrs. Meredith has discussed in her address, I remember Mr. Martindale a few years ago described a dairy cow as being rather wedge shape, but from my own experience we have a cow giving sixteen quarts of milk; while she is a good milker, she takes on flesh at the same time; it seems to me this is a good combination. After turning her dry she fattens easily.

Dr. E. A. Collins, Matsville. I remember a statement of a milk and butter man when he purchased a heifer calf that turned out to show signs of fatness he did not think a calf indicating a tendency to lay on fat would contain also a tendency to give much rich milk. I wish to ask Mrs. Meredith whether it is compatible or incompatible?

Mrs. Virginia C. Meredith. A cow in good flesh may give rich milk. I have a cow of the Cruikshank breed, which gives good rich milk, but not so much in quantity as some other strains. The butter is of a high color. I do not think it is incompatible; I like to have them lay on fat at the same time.

D. F. Pegg. As to an animal being in good flesh and giving rich milk, I will say I have an animal in my herd of the Cruikshank breed that has been in the show ring and in good flesh. My wife has remarked several times that she gives the richest milk of any in the herd. We have some that gives more, but her milk is the richest and best. I will say further that I am well pleased with the paper read. I think the statements made in that paper in regard to the milking qualities is one of more interest to the Shorthorn men generally than anything else. I am satisfied that the Shorthorn men have made great mistakes in ignoring the dairy class of Shorthorns. We know in old times that the Shorthorn cow was a general purpose cow, not only for beef but dairy, and I am satisfied that the loss of this feature is the fault of the breeder. Many of our best breeders look after nothing but the beef qualities of the Shorthorn. If we have an animal and it is the best general purpose animal, we should take care of this interest and not allow it to retrograde. We have been guilty many times of spoiling our young cows, not caring about the characteristics of the dairy qualities, feeding too much for fat and the show ring, and losing sight of the milking qualities. This course pursued from generation to generation has produced that. I believe that is the reason and the only reason, why Shorthorns are not as celebrated for milking purposes as a few years back. It is important that we should look after this and endeavor, while we are keeping up the beef qualities, not to neglect the dairy.

T. A. Cotton, Shelby County. While we have assembled here as Shorthorn breeders of the State of Indiana, as a representative of this body, I feel that we should occupy the time profitably. We are assembled to discuss and consider the great Shorthorn interest, and the paper read before us is worthy of our highest consideration. The beef and milking qualities of the Shorthorn is what the eye of the farmer is looking upon to-day. The dairy industry of the farm in our part of the State (Shelby County) is being carefully investigated. We have Eastern men over there organizing cheese and butter factories. We have one in our county, and farmers are discussing the dairy qualities of our cattle, and we as breeders, if we have dairy qualities in our Shorthorns, it is time we were making an effort to place that before the general farmers of our country. My experience as a breeder is not so extensive as some others, having bought my first herd in 1874. I am satisfied with the milking qualities of the Shorthorn, and in order to develop that, we have to breed our Shorthorn cows as dairy cows, feed the calves, and never let them run with the cow. If they run with the cows we will have nice calves, but it is ruinous to the Shorthorns' dairy qualities; rather treat them as dairy cows are treated, and I believe we have a characteristic in the Shorthorn cow to make her a general

purpose cow. A tenant can have a cow as well as the land owner. He can sell the calf early, and then have plenty of milk and butter for his family. I know what I am talking about. In my neighborhood I am the only man representing the Shorthorn interest; there we have the Hereford and Holstein men. The latter have made rapid strides, because they have the name of having the dairy cattle. They are not so prominent to-day as a year ago. That being the case, I stand up to be recognized as a breeder of Shorthorns, and say to you, let us develop the milking qualities of the Shorthorn; let us take courage, because we believe they comprise that element; let us work to that end, and I have no doubt but that victory will crown our efforts.

Judge Martindale. In support of my suggestion we want to establish facts and get them before the public. That the Shorthorn is the best animal for general purposes which makes it a market animal. I would like to have that paper published and go before the people in that light. In support of that, I move that the paper be published in the daily papers of this city and the agricultural papers be requested to do the same. Perhaps there should be a committee appointed to look after this matter. The daily papers depend on making up their columns with various articles of news, but if the matter was properly presented to them, the daily papers will publish it in full and then in the weekly. If we have merit in the Shorthorn, which we believe we have, then let the people know it. We must do this, we must make these facts known. This paper contains certain condensed facts and tests made in pursuance to the offer of the premium on tests and will make the Shorthorn more perfect. Beginners in the Shorthorn business will have this question under consideration as to what is best to start with, and this paper goes right into that; it is on the point of merit in the Shorthorn.

President Buckles. It is in order now to hear reports from standing committees.

Mr. Folsom. I believe I am part of a standing committee to encourage Shorthorn breeders to prepare an exhibit of dairy cows under the premium offered by the National Shorthorn Association. The only report I have to make is this: This committee decided after the State Board of Agriculture had prepared its premium list they would devise the means to forward this work, but after we prepared this list the Shorthorns were ignored; therefore, we had nothing to do.

Mr. Strange, from the Committee on Legislation, reported as follows:

I will say there has not been any important work done. I have given the matter some attention myself, but as to getting any work in this session there has been none. The Legislature has been organized and I find I had no opportunity to get any work in and have no report to offer, but we might offer a report of some bills introduced of importance to the farmers of the State. One as to the reorganization of the State Board of Agriculture, which gives each of the industrial associations representation on the Board, and that said Board shall consist of thirteen members instead of sixteen as it now is. I have a copy of the bill which I can present if desired, and we might get an expression in regard to the concurrence of the bill in that form, or an amendment, as to the reorganization of the State Board of Agriculture. I will say, Mr. President, here is the bill that has been introduced and if it is desired to have it read, I will do so.

The bill was read and discussed at length.

At the conclusion of the discussion I. N. Cotton offered the following, which was adopted :

“ Resolved, That the Indiana Shorthorn Breeders’ Association favor a reorganization of the State Board of Agriculture and the live stock associations be given representation on said Board.”

The Chair appointed the following committees :

On Programme: Messrs. W. J. Quick, Mr. Leavelle and Thos. Nelson.

On Nomination of Officers: Messrs. E. S. Folsom, C. P. Miller and Mr. Moore.
Adjourned.

WEDNESDAY MORNING SESSION.

JANUARY 21, 9 A. M.

President Buckles called the meeting to order.

The programme was taken up and I. N. Miller, Upland, Grant County, read the following paper on

“THE BEST METHOD OF REARING HEIFER CALVES FOR BREEDING PURPOSES EXCLUSIVELY.”

I have no theories to advance upon the subject for discussion, only a few practical points, such as would most likely occur with the ordinary farmer, where a few cows were kept for general use.

As the prospective evidence of the future cow begins at calfhood, we will first look to a few facts that embrace a great deal of value in connection with the best method of raising calves, more especially for breeding purposes.

Before the calf has attained much strength, say within one week from birth, they should be provided with a halter and taught to lead, stand tied, and come to the attendant wishing to put on the halter, rather than always going after them when wanted. This will not be much of a task if patience and kindness is always observed. By giving them a name of pronounced distinction, they will soon learn to answer the call or come up to the appointed place. When that much has been accomplished, the future cow will have acquired much of the knowledge so essential when her usefulness begins.

The advantages gained by owning a cow well broke to the halter, and one that would be impossible to get cornered, to say nothing of trying to tie, will not require further words, as the truth is too invincible for argument.

A well broke cow, having the confidence of her keeper, will add as much to her value as probably any other point she may possess.

If the mother of the calf is being stabled while the calf is quite young, it should be tied near by, so that if allowed to draw the mother’s milk, the end of the chain or rope can be loosened at the time, and when wishing to remove it, there would be no difficulty leading back to the place it belonged.

The same method applied during the summer season, when kept in lots, answers equally as well, either when sucking the cow or fed from a bucket, and by the time they are old enough to wean, would be so tractable as to offer but little trouble to handle ever afterward.

FEEDING.

Feed exercises a powerful influence in the growth of a calf, and should be highly nutritious and in the right quantity, as over-feeding, at any time, might prove as injurious as under-feeding, if getting anything near what they should have.

Of all foods, the green, tender grass plants are unequalled as a food ration for young stock. For the first ten or fifteen weeks the calf will depend principally upon milk, after which, as a substitute for grass, wheat bran, crushed oats, and green corn run through a cutter, mixing the whole, makes a good feed, and calves can be fed upon this, when weaning them, with little trouble and much profit. This will apply to the first five or six months of the calf, when they will arrive at a critical period of their existence, cutting on the milk ration, or weaning them entirely, and from grass to dry feeding. Chop-feed composed of unthrashed oats, bran, corn and cob meal, together with plenty of bright hay and corn fodder make a variety that does well in maintaining the growth of a young animal.

Heifers intended for breeding purposes should be kept in a thriving condition, so as to obtain a reasonable degree of size and flesh for the age they are in, but to feed for excessive growth and fat is not commendable. Many times excessive feeding produces barrenness and serious loss of a valuable heifer on that account.

Some difference of opinion prevails as to what age heifers should be when bred to get the best results. Good, strong yearlings, such as would be two years old during the winter or early spring, bred at 16 or 17 months old, so as to have passed their two years, would calve about May, which would give them the advantage of the season in this climate, when grass had become plenty and at the best stage to develop the milking qualities of the heifer as produced by the value of the food they would get, which, in all probability, has an imparting influence in future years.

This may not be the best method of raising cows, but is something like my plan, and about all I have to dilate upon, only to say that I have never owned a cow that proved to be barren or aborted her calf, of probably two hundred owned in the past fifteen years.

Regular feeding and just enough, with plenty of water and frequent salting, will alleviate those troubles, is the belief of one who thinks there is more in care than luck.

DISCUSSION.

C. P. Miller, Greensburg. I endorse the sentiments contained in the paper. Upon this subject of rearing heifers, my experience has been that they should be kept well. Those which have not been well cared for have not proved to be so good; what I mean by that is good flesh and in growing condition. While I

would not recommend feeding outside of what we produce on the farm, I would give them plenty of that. As far as barrenness is concerned, we had better have a lot of good cows, which can be made only by proper feeding, and will be ready for the market, than to keep them in poor condition and thereby reduce the quality of the cattle. If we feed well, we will have them ready to go on the market at eighteen months old. You have a fleshy habit formed in the heifer, and she keeps fat all the time. Their system takes up and assimilates food easier, and she grows up quicker, than to allow her to grow up poor. Take the best cattle in the State, and breed them in poor condition, and take the produce of these cows, I don't care how well bred they are, and you will have "slab-sided" cows. My opinion is we should keep them fat. I want them to be in reasonable flesh, so that anybody who comes to see them will find them looking well from the time they are calved up to the breeding time. I have kept them both ways, calves out of the same cow and same bull, and let them be equal at calfhood, and my experience is there is a great difference in the keeping.

R. H. Phillips. We want to keep our cows in good flesh. We have one cow, Minerva the Fourth, and have showed her for a few years past, and there has not been a time when her back would not hold water. She will soon be five years old, and has had three calves. Another I bought of Mr. Wilhoit. She had a calf a year ago, and none since. We showed her at the Ohio State Fair this fall. A representative of the *Breeder's Gazette* said she was too fat, but I do not think there is anything in that. We have had some trouble with thin cows. There is no trouble when too fat.

WHAT ARE THE GREATEST OBSTACLES THAT SHORTHORN BREEDERS HAVE TO OVERCOME, AND THE BEST WAY OF MEETING SUCH OBSTACLES?"

Was the subject assigned to Mr. W. F. Christian, who stated that he had not prepared a paper but would like to hear the question discussed.

Hon. J. N. Sankey, Terre Haute. I have no speech to make on this subject, but I have my idea as to the breeding of cattle. It is this: that there has been too many inferior bulls and cows sold to beginners; we have not been careful enough when we have had sales to sell good ones, and results have not been what was anticipated by the buyer; neighbors seeing the result of breeding from what they are pleased to term high-priced cattle, and the improvement is so small, by reason of their buying inferior stock, that the neighbors or people generally don't wish to embark in the business of raising Shorthorns. It seems to me, as Shorthorn breeders, we should be exceedingly careful what kind of breeding bulls go to our farmers. I think we will have to be more careful in this particular. It is an admitted fact, that however good a man's herd may be, occasionally there are cows that have poor calves; they come in bad shape and do not look well, and make weak offspring, and his neighbors seeing these calves conclude there is nothing in breeding Shorthorns. If we would not sell such animals, one of the obstacles would be partially destroyed. I had fourteen bull calves this year and altered ten of them.

T. A. Cotton, Manila. If it were not for this subject perhaps I would not have been here to-day or yesterday. I saw my name was on the program to follow Mr. Christian in this discussion. As I look upon this it is a very important subject and one in which the Shorthorn breeders are directly interested. It is worthy of our careful consideration, because the time has come when the Shorthorn interest is not where it used to be. I have given this matter a little thought in the last few days, and I believe, to start out with, my idea is, the obstacles that we have to overcome now, and have been for the last few years, is overproduction and want of confidence in the Shorthorn breeders. The range people have produced so much beef, but the range is becoming a failure. With the syndicates from the old world they are tired of it; they have been through the mill and are going out of the business, and the cattle are being sent to the market regardless of the condition they are in. The result is, we have reached the lowest price cattle assume in our markets, consequently the breeding stock of our country has sympathized with the low price of beef, but we feel that time is nearly at an end, and as beef advances we think it will help the Shorthorn and beef-breeding class of cattle all over the country. Another thing, as my friend Mr. Sankey says, he raised perhaps fourteen bull calves this year and altered ten of them. I have done the same thing he has done, and perhaps others have done the same. Whenever this beef from the ranges has become to some extent exhausted our cattle will come into demand; I mean the thoroughbred cattle. And I say to the young beginner, buy pedigreed cattle, because that has something to do with what we have in the stock. An animal that has a pedigree has respect in the country, and that being the case, and prices we can buy at, we will have a good demand for young bulls. I have lately received a letter from a breeder of Moberly, Kentucky, who stated that he had fifty young bulls to throw on the market of the country. We have been altering our inferior calves; that is the principle upon which we should act. We should alter our inferior calves instead of sending them out to the breeders; they turn out unsatisfactory, and it is ruinous to us if we do not castrate them. I would like to have an expression from the breeders generally on this matter. This trouble is hanging over us to-day.

President Buckles. Gentlemen of the Association, I would prefer listening to other gentlemen who have had more valuable experience than I have. It is a matter in which I feel a deep interest and a matter in which I have some money involved. I am trying to winter one hundred head of Shorthorns. The price of Shorthorn cattle is rather low at this time, and some say they would as soon breed to the scrub, as they can't get any more for a Shorthorn, but the more I see the more I think they are mistaken. It may be some little time before we get out of the present condition, but will eventually come to the Shorthorn as a beef animal. We know it can be by making it also a milk animal, but I feel confident in the beef interest that the time is not far distant when the price of Shorthorns will be better. I advise all young men who have been thinking of engaging in the Shorthorn business to do so as early as practicable, for you can buy cheaper now than you can for the next ten years, I think. I think I am not mistaken. They are as low now as they ever have been, compared with other breeds of cattle. What is there in existence to make them go lower? It is said by some there are so many

of them. Let us see how it is. Taking them as beef animals alone, we know by looking over the statistics of the country that to-day there are less beef cattle per capita than for the last ten years, and we know to-day from the same source that we are consuming largely more beef per capita than a few years ago. Many of the old countries are consuming more. England is consuming more, France and Germany are doing the same. If it is true that we have more beef cattle per capita, can not we see the thing must change for the better? The range keepers are said to be in the way; with large ranches, naturally there is a cheap article of cattle thrown on the market and thereby injuring our prospects. Every day the ranges are being crowded with steers and will have to be thrown on the market at once, and it will not be long until the range herds will be a thing of the past. We have gone through the dry season. I have felt it sorely, others have felt it, too, but it occurred to me however gloomy one may feel the thing is to look to the future with a happy determination to push forward this great industry. Let us lay our shoulders to the wheel with a determination to succeed, and unless these things are mistakes we will succeed in getting better prices than we have. It is true the breeding of Shorthorn calves is a business which requires close attention, and a man who engages in it must devote his attention and take an interest in it. Many times our prospects of success vanish and things look gloomy, but let us try another year and see if we are mistaken or not in this respect. I think it is possible that first-class beef cattle are worth more in Chicago now than some time ago, and I apprehend it is a shadow of the reality that must ere long come. Let us nerve ourselves up to the effort and trim our herds up and put them in salable condition. I have castrated nearly all my bull calves and sold some steers at 2½ cents per pound, which is better than to sell scrubs at 2 cents. I do not intend to keep an unnecessary supply of bulls on hand. I am going to thin out, for I believe it will be money in my pocket in the end, and change a little in selling heifers, selling at low prices. Those I would not sell for breeding purposes at all I would fatten up and sell for beef. Let us breed from the best, and whenever our neighbors breed from our herd let them understand they are breeding from the best we have. I wish to apologize for not rendering better service than I have the past year. I live on my farm by myself, with no help but what I hire, and supervise that all the time. After looking after that I do not feel like writing an address at night. The truth is I have postponed it until I am ashamed of it. I thank you very kindly for the honor and courtesy you have extended to me heretofore, and feel as though I was hardly worthy of it. Let each and every one go to work and see what he can do at reviving an interest in the Shorthorn business. We are not so bad as an Association in numbers and interest as when I first attended. In the process of time we have better interest, but I confess the attendance has not been quite so large this year as some years previous, but it is attended by zealous and apparently deeply interested men who are ever ready to exert their influence in rebuilding it up to a high standard of excellence.

Mr. Mitchell. I have just been called out on a committee, and have lost the run of business.

The Chair. The question before the house is : " What are the greatest obstacles that Shorthorn breeders have to overcome, and the best way of meeting those obstacles ? "

Mr. Mitchell. That is quite a field for discussion. It is so large I do not know as I can advise what it should be. There is one field which I regard at present of interest to Shorthorn men, that is the price men have to take for the beef; they can not get enough for the steers when fat; but I believe it is just as you said, Mr. President, that the time is not far distant when the markets will be better. I think that the syndicates and monopolies have much to do with the depression of the beef industry, and, at the prices they propose, the beef will not bring enough to give much, if any, profit. If we could have a lively competition for handling the meat the times would survive, and I am going to pin my faith to the Shorthorn, for I believe it will pay soon. The product in the West is failing, and I believe if the Shorthorn men will stand together and not throw their cattle on the market in a fearful condition, and put them at prices that are not running the Shorthorn cattle in the ground, that handsome profits may be realized from the Shorthorn industry.

Mr. Strange. What is a fair price for a bull calf?

Mr. Mitchell. A good, nice, well-developed calf, eight or ten months old, should not sell for less than sixty to one hundred dollars. The trouble is there are so many saved that are not fit for market. We should select our calves, and put nothing but the best on the market. If you put an indifferent calf in a neighborhood the neighbors will meet and criticise that calf. He is a good advertisement either for good or bad. He is a good walking advertisement as to what kind of cattle that man is breeding. We should be very careful to send out the very best, and no breeder can afford to do anything that will not redound to the breeder he sells to, and himself who sells it.

Mr. Strange. You refer to one quality of Shorthorn, and that is individuality, but say nothing about pedigree. Now, at the present tide of things, people are seeking individuality, expecting a high market, and don't all the time get it.

Mr. Mitchell. The day has gone by when pedigree will do this. We want a good, heavy, useful cattle. I sold some some time ago, without pedigree and brought good prices. We want a good beef producer, one that will bring down the scales to twelve hundred pounds at two years old; when we get that kind they will sell well.

Judge Buckles. You spoke of the question of interference with the beef market by combination. Have you any remedy in your mind for that?

Mr. Mitchell. I have been taking this subject as a text at farmers' institutes, until I am like the young preacher who took for his text " Peter's wife's mother lay sick with a fever." He followed that sermon, giving out the same text every place he went, for three or four times. A man and his little boy had been attending these meetings, and had heard this text announced so often, that the little boy, becoming exasperated at hearing the same old text, said to his father " Ain't that wife dead yet?" That is a good deal like this case. I have taken the subject of combines and trusts as a text everywhere I go. We want to get some kind of legislation that will protect us. In Terre Haute, Col. Thompson said " the organ-

ized Farmers' Alliance was asking too much legislation," but he admitted there was a great necessity of a restraining power. If we could have a law to prevent this combination and have a healthy combination for handling this meat, we can take care of ourselves as to production. It is illustrated here of one of our European syndicates, if reports are true. They wanted a plant in the stock business, and went to New York, to try to effect a loan of fifteen million dollars, to make another competition of a particular breed, this time in Illinois, but when they went into an examination of the law it prevented that combination. Why can't we here in Indiana? They are monopolizing this business and paying the producer just what they please and we are seemingly powerless in their grasp. A little restraining power so as to prevent this combination would be the most beneficial thing, and our national Legislature should take up that question and pass some measures of protection, for it is driving them out of the country for the need of it. The transportation of dressed beef is not giving satisfaction in every particular. When started it is put in a refrigerator car and laid down nice there, but before getting through in a warm season the meat passes into a clammy state and has to be re-iced at Buffalo; it has got down to a clammy condition and when transported in the ship to the old country it is difficult to keep up a uniform temperature, and the meat sours and much of it is lost and thrown overboard. Such being the case it would be better to transport to the port of debarkation before slaughtering, but I am informed that losses occur even in that way of shipping and many would rather go back to live stock shipping.

E. S. Folsom. Does not this lay with the farmers, somewhat? The difficulty seems to be the farmers will not introduce better stock, and raise what the public wants. Good cattle seem to bring good prices, but ninety per cent. has a tendency to fix low prices. While these low prices are the result of an inferior article, the good article suffers the same. The one difficulty we have to overcome is, how to get farmers to breed and buy better cattle. Take the statistics of last year; we had 1,300,000 head of cattle, and less than ten per cent. were improved breeds, including Shorthorns, and all other breeds. This does not tell well for the State. 'Although the Shorthorn has been in the State for thirty-five years, and other improved breeds, there is less than 10 per cent. supplanted. How can we get the farmers to abandon the scrub and get better stock? Certainly he is behind the times, and not in keeping with other agricultural industries. He comes to the city and buys the best machinery, while he complains of the manufacturer and the dealer that deals in the stock, while it seems to me he is to blame as much or more. If a man should come here and buy a plow manufactured on a pattern of a hundred years ago, we would think he was an idiot. The dealer would not expect to sell such a plow. He should keep what the people want. If he floods the market with that grade of products, he fixes the price of better products. He is not progressing rapidly in the matter of stock, while he may in other lines of farming.

J. M. Sankey. The gentleman said the fault lay in the fact that they brought inferior cattle on the market. Many are inferior that are put on the market, but are the cattle more inferior to-day than five or six years ago when they were selling from five to seven cents?

E. S. Folsom. I think not, but, Mr. Sankey, when everything is on a boom it will sell. When we measure on the law of supply and demand it cuts a different figure. But everything is depressed and that perhaps has something to do with it.

On invitation, Gov. Hovey appeared before the convention, and business was suspended for a short time to listen to him.

GOVERNOR HOVEY'S REMARKS.

Gentlemen of the Indiana Shorthorn Breeders' Association:

I regret not being with you and becoming more acquainted in your work. I do not know as much as any one of you in regard to the Shorthorn business, but I am in favor of the cultivation of stock of every kind in the State. I am satisfied that Shorthorns are making advances more rapidly than other classes of cattle. I am opposed to monopolies and syndicates, whether they touch you or not, and am in favor of fair and free protection of the things of this country, and if I had it in my power I would prohibit these things. I suppose the most of you are farmers. I am trying at the present time to induce the General Assembly to take a different view in regard to the taxation of our State. The farming class have had too much of a burden to bear for many years. In other States they hardly bear any taxes on the land. In New York, Connecticut, Wisconsin and several other States corporations of different kinds are taxed and pay money into the Treasury for the support of the State, and I do not see why it could not be done here. These corporations form for the purpose of making money, and should pay tax on the same. The farmer pays for his farm, his hogs, his cattle and sheep, and every man escapes who has money and refuses to give it in. I do not understand it. I hope you will take this matter up and discuss it, for it is a vital question to the farming interest of Indiana. I do not know of anything that would be of more interest to you than what I have presented, and I thank you for the privilege of talking to you as long as I have.

Judge Buckles. The Governor has made some good suggestions, especially in regard to taxation, and we should work together regardless of party to bring about legislation for the equalization of our taxes. We are paying too much to our public officers, for one thing, which should be remedied. I am thankful for the Governor's statements and the attention he has given us.

Dr. Forsythe. This subject of Shorthorn cattle is a deep subject and lays back quite a ways. We go back across the waters and we find our friends of the Bates there have built up this family of Shorthorns without a herd book—built up to what it was. The reason I make note of that fact is, these gentlemen look at the merit of the animal, for we see they get deep in the heart section and paper had nothing to do with it. Well, it went on and I claim that twenty and twenty-five years ago we had better beef cattle on the market than to-day. The only thing that ails our Shorthorn cattle now, is the management that the owners of them have given. I was at the sales at Kansas City, and this blue-grass region of Kentucky was represented by some of the Bates blood, by Mr. Hamilton. He had on exhibition a bull, Airdrie Hamilton, which Mr. Hamilton declared had more Bates

blood in him than any bull in the world ; then he handed him over to Friend Juddy, the auctioneer, and he says, " Here is a bull of high merit ; you know Mr. Hamilton as a breeder and know what can be relied on ; what do I hear from you ? " A wag setting by says, " O, yes, O, yes, that is the best pedigree bull in the world, but where in the hell is the bull ? " They went on after that and castrated every calf if it was not red, but if red we kept and sold him and went right on making this thing prove out that this Duke was the thing of the world ; went to work and castrated the best Duke, took and showed him at Chicago and he took the ribbon for three years old and took the ribbon as the best beef on the block. They took to the hotel a hundred pounds of that beef to feed the Shorthorn friends on at the exhibition. It was announced next morning that it was not good and sent it back and would not have it. That is paper beef ; he was the Duke blood. I sold mine early last year for four cents at home. We have too many cattle we call Shorthorn that are really not worthy of it.

I. N. Miller. It was the quality of the feed given the beef taken to the hotel that made the meat so tasteless.

Dr. Forsythe. I give it as it is.

I. N. Miller. You breed Shorthorns for sale, and many times the beef is not such as will induce farmers to take hold. It took money and it took stimulus to do the work for glory, and you Shorthorn men have worked for glory, and now are getting in the background, and can not afford to sell at prices to the common farmer that he can afford to give. We must by organization in some manner look to the sale of beef. If we can get some legislation this trouble might be somewhat obviated, but as circumstances are to-day there is a limited chance for the farmers of the country to get the prices they should get. Can you get four cents from the first of September to the first of January ? I doubt it. Competition is no more in the beef traffic. The farmers should all work together in this matter, regardless of party affiliations. What is one man's interest is another's, no difference what his politics are. I think we should coöperate together, and endeavor to break down some of those monopolies and syndicates which are detrimental to our best interests.

Hon. H. F. Work. I introduced a bill, now before the Legislature, concerning enclosures, trespassing, partition fences, etc. This bill before you to-day recognizes a combination wire and picket fence when made hog tight.

J. D. Spahr. This does not include hedge fence.

Mr. Work. This was written in a hurry, and should include hedge as well as this combination wire or picket fence. These measures are open to criticism, and I would like to have your honest opinions, and where you find any fault let it be known.

Mr. Mitchell. The time of notice is too short—three days.

Mr. Work. That is long enough, if they are encroaching on the corn and wheat.

Mr. Hogg. I don't think a barbed wire fence should be a lawful fence. I had a colt hurt badly last year on such a fence. There should be a picket or combination fence—wire is not good.

J. Strange. I consider the barbed wire in some instances the most economic fence we can build, but there needs to be a provision as to hedge fences. They should be required to remove all trash or litter made by trimming said hedge fence, which should not be permitted to come above a certain height and obstruct the view.

Mr. C. P. Miller. I like the construction of the bill, but I do not understand as to the hog-proof part; they are, as you know, very destructive. I live by a neighbor and have been troubled considerable; you know how much damage they will do in a short time in a blue-grass pasture.

Mr. Work. The committee considering this bill thought that hogs should be inserted, and hedge fence must come in.

Mr. Sankey. This bill, No. 229, offered by Mr. Work, is a good one, and I therefore move that this Association indorse it, and request its passage by the Legislature.

W. J. Quick, from the Committee on Programme, submitted the following report, which was concurred in:

PROGRAMME FOR 1892.

Indiana State Shorthorn Breeders' Association, 21st annual meeting, January, 1892.

1. Call to Order.
2. President's Address.
3. Unfinished Business.
4. New Business.

5. Profitable and Unprofitable Breeding and Care of Shorthorns—J. W. Leavelle, Tipton, Tipton Co., Ind. Discussion opened by Joshua Strange, Arcana, Grant Co.

6. Indiana Shorthorn Interest and how to stimulate its growth—S. S. Earhart, Mulberry, Clinton Co. Discussion opened by Judge J. S. Buckles, Muncie, Delaware Co.

7. How to Create a Greater Demand by Farmers for Shorthorns—D. W. Heogy, Columbus, Bartholomew Co. Discussion opened by Thos. Wilhoit, Middletown, Henry Co.

8. Debate—Question: The Feasibility of Breaking the Line Breeding of Shorthorns. Opening of affirmative—H. C. G. Bals, Indianapolis. Opening of negative—W. S. Robbins, Horace.

9. What are the Greatest Obstacles that Shorthorn Breeders have to Overcome, and the Best Way to Meet such Obstacles?—S. F. Lockbridge, Greendastle, Putnam Co. Open discussion, Samuel Hargrove, Union, Pike Co.

We, as committee, would recommend that the Secretary be instructed to notify each member on the programme thirty days before the meeting as to the requirement of him and the date of the meeting; and, further, that each member whose name appears on the programme, on finding that he will be unable to attend the meeting,

that said member notify the Secretary that he will be unable to fill his place, and that the Secretary be instructed to fill all vacancies as promptly as possible, that our programme may be full and carried out as near to the letter as may be possible.

E. S. Folsom, from the Committee on Nomination of Officers, reported as follows:

Your Committee on Nominations of Candidates for Offices for the ensuing year make report as follows:

President, J. M. Sankey, Terre Haute.

Vice-President, Hon. C. Cowgill, Wabash.

Treasurer, E. C. Thompson, Irvington.

For Secretary, your committee would report the names of W. S. Robbins and Joshua Strange and recommend that a ballot be taken for a choice of one of the two named gentlemen for Secretary for the ensuing year.

Mr. Cowgill. I feel that it is my duty to say to this Association that it should select a younger man to fill the office of Vice-President. I am not taking the same interest in things of that kind as a younger man does and do not feel that it would hardly be right to take on myself the responsibility and labor, but you should have a young and active man who would take an interest in the Association.

Mr. Folsom. Your committee selected Mr. Cowgill for that office; there is not much labor attached to it; he will only have to relieve the President sometimes and therefore I would beg Mr. Cowgill to remain.

The following officers were elected for the ensuing year:

President, J. M. Sankey, Terre Haute.

Vice-President, Hon. Calvin Cowgill, Wabash.

Secretary, W. S. Robbins, Horace, Decatur County.

Treasurer, E. C. Thompson, Irvington.

Mr. Quick. Last year there were one or two bills brought before the Association that were tabled for want of funds; there was not enough paid in to defray expenses for this year. I call attention to this to impress the necessity of keeping our dues paid up.

Mr. Mitchell. I move that the Secretary be instructed to notify all members who have been members for the current year to pay up, and on failure after thirty days' notice, that their names be dropped from the roll of membership.

Mr. Nelson. I do not like the resolution. I don't want to drive any away; when we pay we are members; if we don't come or send our dollar we are not members. This resolution will compel the parties, if they are delinquent, to respond in thirty days. Let them come up annually and pay their dollar; but if we begin notifying them they will never come again. We don't do this with the Wool Growers, and get along nicely.

Mr. Folsom. Do you move that as an amendment?

Mr. Nelson. To make it clear, don't go beyond the current year. I will make that as an amendment.

The motion was carried as amended.

Mr. Mitchell. There were some remarks made yesterday regarding the State Board. I turn to the premium list made year before last, and find that cows two years old and over had to have a record in regard to milk and butter test, and, in

this, there was little competition against Mrs. Meredith. This year the question that stares the Board and Shorthorn Association in the face is this: What is the use of putting this in the list without some assurance, or let it go by default? If the test was not up to the standard they would not make any awards, and we would feel somewhat behind. It is either for the prize to be put in the premium list, or left out. If we put it in, will you meet this? This will come up before our February meeting. I want to carry out the wishes of the live stock associations, and want to hear an expression from you in regard to this matter.

E. S. Folsom. When the National Association offered prizes to agricultural societies they were conditional; of course one of the conditions was they should be Shorthorns to be admitted for a sweepstakes prize with other dairy breeds. No test being attempted, the show was not satisfactory. The next National Association extended this premium, but under different conditions. The condition was that the State Board or Society accept the premium in regard to absolute test of dairy breeds, on the ground of a resolution from the associations, and put in the premium list. A year ago I was appointed on the committee to note prizes and compare Shorthorn cows. In this show we were making a move in the right direction; a year before, but one animal was exhibited; but the time given was short, and no preparation had been made. Here we had a year's warning, but when we commenced we found that the State Board had ignored the matter, and was not entitled to compete. I don't know where the blame is. The National Association offered prizes and not the State Board. Our hands were tied and we could do nothing.

Mr. Nelson. The prizes made last year were, as Mr. Folsom says, virtually ignored, and we did not make a sweepstake prize. Another was the meager competition which I alluded to in my report. There being but one animal shown in 1889, served to humiliate, and we let the matter go by default because the Shorthorn breeders did not come up to our aid.

Mr. Folsom. The State Board knocked us out of range, and therefore we had nothing to do.

Mr. Mitchell. I rise to defend the Board on that. The Board should not be blamed, for the Shorthorn Association, as well as all the others, got in the premium list all they asked for. Now, if the Shorthorn men want this test put in, say so, and don't cast a reflection on the Board afterwards.

Mr. Folsom. We thought the agricultural interest would be looked after by the Board, and would be in order to invite a committee of Shorthorn men to the meeting at the time of making the premium list, but had no notice of it.

Mr. Mitchell. It puts the Shorthorn men in this kind of condition: If there is no competition, which is best, to leave it out or let it go by default?

Mr. Quick. I move that a committee be appointed to look after these duties as last year. The committee last year of which I was a member, with Mr. Folsom and Judge Martindale, took steps similar to the past fall, a year before, with that idea. Before we left Indianapolis Messrs. Folsom, Martindale and myself talked the matter over, and were much mortified at the shape things were in and have had no chance to redeem ourselves yet. As this offer was made by the National Association and cost the State Board nothing but placing in the premium list, we did not dream but that it would be put in. There was but one animal that competed

for that prize last year. We should have had a strong competition, but when the premium list came out our hands were tied and we could not do any more. We should make the attempt this year. The members of the State Board have said they would give us an opportunity this time; heretofore it has been a misunderstanding between the Shorthorn Association and the State Board, but I think we will make a good show this year.

Mr. Folsom. The State Board could not be unmindful of the case, because it was before them.

Mr. Robbins. Let us have a committee to revise the list clear through.

Mr. Quick. I will add that this committee confer with the State Board in this matter. I will put it in the form of a resolution:

Resolved, That the Indiana Shorthorn Association appoint by its President a committee of three members, whose duty it shall be to confer with the Indiana State Board of Agriculture at their February meeting, on the revision of the premium list. (Carried.)

The Chair appointed Messrs. Quick, Folsom and Robbins as such committee.

Mr. Folsom. As the treasurer is not present, I move we have a committee appointed to see that he makes a proper report to the Secretary, to be furnished to the Association next year.

Mr. Mitchell. This report should be made to go in the report this year.

Mr. Christian. I wish to offer an amendment to Mr. Folsom's motion. He says "report to next meeting." Let this committee be appointed, and immediately confer with the treasurer (he lives in the city) and report the result at once to the Secretary, and authorize the Secretary to put it in the proceedings.

Mr. Folsom. We may not get the Treasurer's report, but it might be well to give this committee power to report and adopt the report of the committee.

Mr. Nelson. Let this matter be left with the in-coming President and Secretary, and if they find it satisfactory, they can place it in the forthcoming report.

Mr. Folsom. I withdraw my motion in favor of the amendment offered by Mr. Nelson. (Carried as amended.)

Judge Buckles. I wish to introduce to you at this time Hon. J. M. Sankey, the newly elected President of the Indiana Shorthorn Breeders' Association.

PRESIDENT SANKEY'S REMARKS.

GENTLEMEN: I was much surprised on being informed that I would likely be elected to this office. It is something I had not thought of, but I assure you that I am very proud of the honor you have conferred on me, to preside over such a body of men as I see before me. Whether I can do anything to advance the Shorthorn interest in Indiana the coming year I can not say, but I can say that I will do my best to enhance the Shorthorn interest of Indiana. I do not desire to make any extended remarks on this occasion, but I do feel that I shall have to have your co-operation and assistance if I do my duty; but I expect to get that if necessary. Again allow me to thank you for the honor you have so generously bestowed upon me.

Mr. Mitchell. Before we adjourn, I will ask if it has not been the custom to set the time for next year's meeting. This week seems to be the best on account of railroad facilities. Therefore I move that the Shorthorn Breeders' Association meet next year on Tuesday, the third week in January, at 1:30 P. M. (Carried.)

Mr. Strange. I would ask if there has been anything done among the Shorthorn men in reference to the World's Fair, to be held at Chicago?

Mr. E. S. Folsom. The question as to what we do for the Columbian show should be considered. I will say that Judge Martindale had agreed to be here this morning and make a statement as to what we ought to do, but he does not seem to be here. Mr. President, this suggests to me another question: the State of Indiana will have to have a fund to be represented at this show, and the State Legislature is the one to make that appropriation, and I therefore move that it is the sense of this body that the Legislature be requested to appropriate not less than \$150,000 to help make an exhibit at the Columbian Exposition in 1893. (Carried.)

Mr. Sankey. The Secretary should perhaps be instructed to transmit a copy of this resolution to the Legislature.

Judge Buckles. If we can have a committee resident in Indianapolis to take hold of this it would perhaps be best. It would be expensive to come from a distance to look after it; a great many are willing to work if we could come here without being at any great expense. We have to do some work to get that appropriation through, but from what I have seen there is an element in the Legislature who will want to cut it down to \$20,000 or \$25,000. Gentlemen, if we can not make a good show we don't want to make any at all. Indiana can maintain a position of credit and respectability if she will act, and this, under the circumstances, is the first and best great opportunity Indiana has ever had to show to the world what she is and what she can do. I want to see when I go to that exhibition the Indiana building, which we are to have, about as good as anybody else's, except Uncle Sam's. I want to see that building composed of the best of Indiana material and crammed full of Indiana products. I am getting old, as well as some of you, and we may never have another opportunity as we have now, and allow me to ask you, gentlemen, where are the men of Indiana who feel more anxiety in having Indiana fairly and fully represented in that exhibition than the farmers and stock breeders of the State? Are there any? No! We say we do not have a market for this or for that. Let us go to work and show what we have and what we can manufacture and produce from the soil in every conceivable form, and Indiana will realize an immense profit from it more than we can conceive of. Now, as I said before, I would like to have some gentlemen in this city, in the name of this Association, to look after it and watch it carefully.

Hon. Calvin Cowgill. I heartily concur with all that has been said by my friend Judge Buckles. I believe, sir, Indiana is as capable of making as good a show as any other State in the American Union. I believe, sir, it is the duty of her citizens to see that such a show is made. The very riches of Nature have been bestowed on this State and it devolves, I think, as a duty upon us to make every exertion that is necessary to make a full and complete exhibit of everything our State will produce. It can be done only, Mr. Chairman, by taking hold of this thing with a determination to accomplish the object that we have in view, and if

we do we will not be ashamed of Indiana at the time of that exhibition, and if we don't do that we may be ashamed to be seen there, or even to be found that we are citizens of the State of Indiana. Then, I repeat that I heartily concur with the remarks of my friend from Delaware County. I hope this Association will take some steps to forward that great movement.

Mr. Folsom. There is more demanded of us than other States. It is nearly equal with Illinois.

Mr. Robe. I think it should be \$250,000, instead of \$150,000.

Mr. Folsom. It should not be less than \$150,000 and we will take as much more as we can get.

Judge Buckles. The object of my remarks was to get some parties in the city to take hold of this, as they would be handy and incur less expense.

Mr. Folsom. If the other industrial associations will join we should have one on that committee.

Judge Buckles. The committee I had reference to was a legislative committee to look after this appropriation.

Mr. Christian. I move that a legislative committee of three be appointed to look after the interests of this Association in regard to this appropriation, and that said committee be selected as near Indianapolis as possible. (Carried.)

Messrs. E. S. Folsom, W. F. Christian and J. W. Robe were appointed as such committee.

Judge Buckles. Let us talk to our representatives in the Legislature and get them interested. It is a cause in which we are all interested, regardless of political parties, and must not become blind to its importance.

I. N. Cotton. I have been in the city the past week, and have heard many Senators and Representatives say they did not want to vote until they heard from these associations.

Mr. Mitchell. One thought more I wish to make; that is in regard to location on those grounds for our building. It is important that prompt action should be taken, as those sites are fast being taken up.

Mr. Nelson. I move that the President of this Association be added to the Legislative Committee. (Carried.)

Adjourned *sine die*.

JERSEY BREEDERS.

The Indiana Jersey Breeders' Association convened in Agricultural Hall, State House, in the city of Indianapolis, January 15, 1891, at 1:30 P. M.

President D. H. Jenkins in the chair.

The records of the annual meeting of 1890 were read and approved.

President Jenkins read his annual address, as follows:

PRESIDENT'S ADDRESS.

LADIES AND GENTLEMEN—In looking back over last year we find that 1890, take it all in all, has been a good Jersey year, and Indiana I think has shared her portion of the success that always attend the introduction of the Jersey cow into any community.

No year in the history of Jersey cattle in America, has witnessed such a demand for this breed as the year just closed. This great demand for Jerseys is proven by the list of transfers, as furnished each week by the American Jersey Cattle Club.

The sales of Jersey stock, both private and public for 1890, exceeded in numbers, quality and prices paid, any year since the great boom collapsed. At private sale three of the most noted herds in the United States were sold: The Maury Jersey Farm Herd in Tennessee, the Eastwood Herd in Virginia and the Pomona Herd of Denver. The prices paid for either of these herds have never been equaled for the same number of cows at one purchase. At public sale last June, a bull calf eight months old sold for \$2,600, and this price was made by competition of the owners of two of the most noted herds in the land. It is a fact also that Indiana was well represented in this chase for a grand bull, and followed close up to \$2,000; and did secure at a long price one of the best bred bulls in the world. This sounds big, but I believe that this calf now owned in Indiana, ere long will be backed by as good a pedigree (rich in butter producers) as is possible to construct out of the best cows and bulls in America. Throughout the country the public sales have been very satisfactory, the two held in our own State leading all others of a like character. At my urgent request, early in the year breeders began making tests and sending in reports of cows making 14 pounds and over and they kept it up steadily all the year. The whole number reported for the year was 201. Of these 178 were for 14 pounds and under 20 pounds, and twenty-three for 20 pounds and over. An examination of these reports confirm the statement so often

made, that the 14-pound cow is not confined to any particular family or lines of blood. It is in the breed and the breed when properly fed and handled makes the butter.

The great Jersey event of the year was the wonderful performance of Eurotisama, in concluding her year's test for butter; 945 pounds and 9 ounces marks 1890 as Eurotisama's year. It was a grand achievement, of which every owner of a Jersey cow, as well as her owner, has a right to feel proud. It was not less a triumph for the Jersey breed, in that it established the fact that the wonderful performances of Mary Anne of St. Lambert, of Landseer's Fancy and a dozen others only less noted than they in one year, were not accidents and did not mark the limit of butter capacity of the Jersey cow. It marks an era, too, since it has given rise to the challenge cup, offered jointly by the owners of the two greatest Jersey cows living, to the cow whose product of butter in one year shall exceed that of Eurotisama. Already a candidate has been entered for the cup, in Bisson's Belle 31144; she was started on a year's test July 15, 1890. In one hundred and ten days she made 380 pounds and 9 ounces, and her owner is entirely confident, that without an accident she will win the cup. These butter records of the Jersey can not fail to attract the attention of the thoughtful dairyman.

Besides these records, it is an acknowledged fact that this breed of cows come nearer milking every day in the year than any other breed. Added to all this the thoughtful reader can not fail to be impressed with the large number of old cows reported; cows ranging from sixteen to twenty-one years, and still doing duty in the herd as breeders, as well as in the dairy. This is a significant fact, and it gives the lie direct to the charge that the Jersey is a delicate animal.

Because those present are more or less familiar with the Jersey and her work, I have hastened through the important events of 1890, to reach a subject which is of vast importance to every owner of a cow of this breed, to every dairyman in the land, and to every man and woman who is in love with good milk, cream and butter, viz.: the World's Fair or Columbian Dairy Show for 1893. The American Jersey Cattle Club, in conjunction with the breeders at the Chicago meeting, foreshadowed a preparatory movement for the proper presentation of the Jersey cow and her products at this great coming event. I will now give you, be it worth little or much, my idea of this important subject, and I can not do it in a better or plainer way than by reading a short editorial, which will be found in next week's *Jersey Bulletin*, headed "Jerseys for the World's Fair."

In continuation of this subject I think there should be appointed here to-day a committee consisting of three competent persons, as representatives of the Jersey interests of this State before the World's Fair. Also there should be, I think, a committee of three appointed to arrange a program for our next annual meeting, and I want to urge the importance to every Jersey breeder and dairyman of uniting with the Indiana State Dairy Association, which is just being formed here to-day, and helping this new association, as I think it is just what is needed.

Mrs. L. D. Worley, of Ellettsville, Indiana, read a paper on winter dairying, as follows:

A WINTER DAIRY.

It has been conceded, I believe, by most of the practical dairymen of the age, that the winter dairy properly managed, is more profitable than the one whose largest production is in the spring, summer or fall. We learn from political economy two things that prove this: First, that we must watch the law of supply and demand and increase the supply when the demand is greatest. Then, too, we know that the more labor we can *intelligently* put into any manufactured article the more valuable it is.

The demand for good winter butter is always greater than the supply. The price is much higher and any one who has tried to get a market for butter in May or November, will be forcibly struck with the difference in the receptions he meets with from his customers. In May you learn that "the market is overstocked" and that "a great many of their best customers go to the country or to the springs." That "it is more expensive for them to handle; summer butter requires ice and constant watchfulness on their part to keep it in good condition."

In winter the questions are: "How much good butter can you furnish?" "Can we depend on you always sending it?" It reminds me of meeting a politician before and after election. In May, it is after election most decidedly. But in November, the vote is yet to be cast, so to speak.

We are obliged to put more labor on our dairies in winter than in summer, and it must be skilled and intelligent labor. A steady, steadfast plan must be followed. We must map out our campaign carefully, and plane every plank in our dairy platform.

First of all a good, warm barn. It takes a certain amount of food to maintain life and keep up the temperature. Over and above that, the food is converted into beef, milk or butter, according to the breed of cattle we use. It is not true that "there is more in the feed than in the breed," but a well-kept, well-fed, kindly treated scrub cow will produce more than a fine cow poorly cared for. It is a loss of labor and money to attempt to do either of these things.

I would not want a basement barn for milk cows. It is too damp. They need sunshine as well as fresh air. The barn should be close, yet well aired, and with plenty of windows for the sunshine. It must be convenient, for useless steps are not intelligent labor. Our cows must have comfortable ties. On their comfort depends some of our profits. I object to the cruel stanchions. The best thing for neatness, I admit, but inhuman to the cows. The golden rule applies to cattle as well as to our fellowman.

Another plank in our platform is winter feed. A silo furnishes that cheaply, and economizes labor also. I allude to corn ensilage, as we have not been successful with clover. Our ensilage was not so good this year as last, owing partially to the breaking of the cutter and the delay in putting in the corn after it had been cut in the field, and partially to insufficient tramping when filling the silo. ("Conscience," Prof. Latta calls it, or rather a lack of conscience.) However, I am going to do some valuable knitting next fall—valuable for the amount of conscientious tramping it is going to put in my silos, for knitting will be done by the

side of the silo, while my presence furnishes the conscience needed last year. With ensilage I feed a balance ration of bran, shorts and clover hay. Oats would even make a better ration than the above, used with the corn ensilage, but they can only be economically fed when the price is only ten per cent. in favor of the oats.

After we have the barn and feed, then only is it time to consider the question of cow. Shall it be a general purpose cow, or a milk cow, or a butter, or a combination of milk and butter? I want to say that I don't believe in general purpose people, nor in general purpose cattle. I think you must decide on milk or butter, and feed for that purpose only. The successful people of the world have been specialists and so have the successful cows.

A good many years' experience (being a woman, "I don't care to tell just how many"), in selling old cow beefs, good Shorthorns, too, a beef breed against which nothing can be said; a breed that has made the beef of old England famous; a breed that has nick-named the British nation a race of "John Bulls," just as we are called "Uncle Sam." I was told a way to make money was to have a cow that would produce fine calves as well as butter (fine from a beef standpoint, you understand) and when I was through milking her she would be worth something for beef. I fed good corn, hay and meal for months in winter to a fine old Shorthorn cow and received \$10 in the Cincinnati Stock Yards for the animal. Out of this I had to pay for transportation, commissions, feed and care at the yard. Where do you think I had any profit to pay even for my feed? Well, it was an experience, a dear teacher, but a good one. I repeated this transaction several times with similar results and I don't want to even hear anything about the profits of old cow beef. The question of aged cows is best met by selling her with a young calf. Test your cows and keep only those that can pay a good profit each year. If we dairy men and women watched the losses and gains of business as closely and intelligently as the merchants watch theirs, our balance would not often be on the wrong side of the sheet.

We want a cow that will produce the largest amount of milk and butter for the amount of feed given. If she is fresh in the spring, then we have the largest amount of milk at the season of the year when it is cheapest and when the work on the farm is most pressing. The spring calf has plenty of grass, when it is too young to use it, and is obliged to subsist on dry feed in winter when it is old enough to gather its living in the pastures.

Winter-raised calves make better milch cows, because they take more readily to all kinds of food and are gentler because they receive more personal attention from the feeder than it is necessary to give to summer calves. In spring they are able to subsist entirely on grass. When weaned in the fall they are much harder to winter. They should come from September to December for a winter dairy. I find that it is better not to let the calves suck the cow. When they have sucked they have to learn two things instead of one when you want to feed them. The hardest lesson is to learn to put down the head in place of up, as it did in sucking. Starvation only teaches this, and, like my old cow-beef lesson, it is a dear teacher to the unfortunate little calf. He also frets after his mother, and she after him. I think the butting of the calf is injurious to the cow's swollen and tender udder,

and fresh cows should never be stripped. This is the practice of the Swiss dairy schools. Warming of water for the cows and calves to drink is only profitable, the Experimental Stations have decided, when the temperature of the water is under fifty degrees. This question of temperature is the point on which the success or failure of butter making largely depends. Summer butter is much harder to manage than winter, for it is more expensive and troublesome to lower the temperature than it is to raise it. Winter butter is easier handled and easier shipped, and brings the largest price in the market. As a final argument in favor of winter dairying, I will assert that the cow that is fresh in October will give milk fully a month longer than the one fresh in the spring. When grass comes "the stripper" increases the flow of milk, and with the added richness of each month after calving, produce almost as much butter as the fresh cows.

"A little farm well tilled,
A big barn well filled,
A little cow well drilled,"

Will furnish the means to provide a modern Garden of Eden, minus the serpent.

Mr. S. H. Godman, of Muncie, Indiana, read the following paper:

THE JERSEY.

Mr. President and Members of Indiana Jersey Breeders' Association:

In presenting a paper of this kind it is almost impossible to be entirely original on a subject that has been discussed by others for the past quarter of a century. But if there is any one breed of stock on the face of the earth that their good qualities will bear repeating it is the Jersey cow.

The Jersey has demonstrated time and time again her good and paying qualities, by the most gratifying results, her worth as

THE DAIRY COW

By her tests for a day, a week, a month or a year, as the butter cow "par excellence" of the world. Whether in the cold climate of Minnesota or Canada, or the temperate climate of Indiana, Ohio or Illinois, or the warm climate of the South, she goes on with the good work, not only producing butter in the largest quantities, but of a quality not approached by any other breed of cattle on the face of the earth, and while she is a living, walking butter machine of the finest order, she must necessarily first produce

GOOD MILK.

To demonstrate, who ever saw the sign on a milk wagon or depot of Holstein, Shorthorn, Hereford, or any other breed of cattle, as a winning card for public recognition? The demand being so imperative for Jersey milk and butter, that many dairymen that only have a few grades avail themselves of the sign

JERSEY MILK, OR JERSEY DAIRY.

The good articles are often imitated. The poor ones never. Some dairymen have a proportion of grade Jerseys, while a few may have thoroughbreds or grade Jerseys in their herds. But very many only have a few and the name or sign.

I happen to know one dairyman who sells milk in a small city that bought a grade Jersey bull about one and a half years old, and immediately put out the sign Jersey milk, but omitted to say "in the sweet by and by," and while he may have sold good milk, he was a little premature with his Jersey sign.

THE AGRICULTURAL COLLEGES

Of our State and country are educating more people than the young men within their walls, so that now the farmer who buys a Jersey cow wants her at least registered in the A. J. C. C., and some of the more progressive kind know quite a good deal about blood lines and pedigrees. And it will not be long till buyers of stock and consumers of milk and butter will know more of the Jersey, and demand a genuine article and insist on getting what they buy and pay for, and those who cater to this class of trade (which in the near future will be universal) will, no doubt, reap corresponding benefits. As the people become educated and interested they are more active and more exacting in their demands, knowing what they want and insisting on getting it, pure A. J. C. C. stock and its products, cows that will produce more butter that is self-colored and flavored with the peculiar aroma of nutting taste, produced only by this breed. While the color may be imitated, the good qualities can never be approached.

THE JERSEY CATTLE IN AMERICA

Have passed through, or nearly through, two stages, if not three. We read that outside of their native island in England, at one time the Jersey cow was more valued for her beauty on the lawns of the rich than for her intrinsic value and ability to produce rich milk and golden butter. Immediately following this stage, both in England and America, came the color craze, and every other quality was overlooked or sacrificed to color and handsome markings. And many people to-day (and of ordinary intelligence, too,) think that if a Jersey is not fawn-colored, with black tongue and switch, the breeding is at least doubtful, but in a little while education will reach all, no matter how far in the back woods, and teach that color has nothing to do with the quality or breeding of the Jersey.

Following the color craze was the purchase of Jerseys at exorbitant prices by rich doctors, lawyers and bankers with more money than anything else, with results following that might have been anticipated when thousands of dollars were paid sometimes for inferior, or only fairly good animals.

Then following these high prices came the speculator with his grades from Connecticut and other Eastern States, and car-load after car-load of this class of stock was sold to farmers and others, and when this class of stock increased on their

hands, many found their mistakes, but some, preferring to pursue a shadow rather than retrace a false step, will still argue that the grades are better than the full bloods, or registered stock, without stopping to consider that the infusion of Jersey blood in the scrub has produced a better animal, that more of the same kind of blood to absolute purity will produce the correspondingly better cow, and nothing short of registration in the A. J. C. C. is positive proof that the blood is pure. However, some have corrected this mistake in breeding and have weeded out their grades, and replaced the same with registered stock; but I happen to know one very good man who had made this mistake, and thought to get out of it by making a greater one by breeding his grade Jersey to a Holstein, and thus produce a new breed; the Holstein part to make the milk "flow like rain from heaven," and the Jersey part to enrich it to the queen's taste. If I can be permitted to come back in fifty or one hundred years I will see about this new breed, and report, and it might be in that length of time, a new and distinct breed of dairy cattle could be produced that would come somewhere near in usefulness to the breeds we already have, but life is too short and perfection too nearly reached in the Jersey breeds to attempt any experiments of this kind.

Many good herds of purely bred Jersey cattle have been built up by men who started with grades and poorly bred stock by weeding out the grades and breeding up with better bulls. Such men are progressive, and deserve more than a passing notice, and are generally to be found in the rank and file of a good breeder.

I heard a gentleman in Tennessee, now a prominent Jersey breeder, say that he had bred Shorthorns for years, but after a while he was like the man who took his children to see the circus; he bought a Jersey cow for his wife, his wife thought and did well with her cow. He liked his wife and likewise the cow he had bought for her. The result was, he bought fourteen more, and his wife sold milk and butter enough in the city of Nashville to pay for the entire lot in a little more than a year; then he weeded out his grades, and replaced his pure A. J. C. C. cattle and commenced to breed up and improve his herd by the use of highly bred bulls, and is still in the same line. To such men, progression knows no bounds until they are where they belong, in the front lines of the procession.

Many other sensible people are doing the same thing, and success will crown their efforts, and many more can and will follow in the same march of improvement. The Jersey cow has come to stay, and on her merits will be bought and sold, and against all prejudice and opposition, she stands in the foreground as the milk cow (quality considered), the butter cow, or the cow to sell. Let the people who are willing to concede the Jersey merits as a milk and butter producer, please to consider her value as a seller, and take the prices obtained at private or public sales in Indiana, Tennessee or New York, and compare these prices with the prices obtained for other breeds of cattle, and these prices will demonstrate that the Jersey holds her position at all times and in all places; she is the rich man's cow, the poor man's cow, the farmer's cow, the city cow or the cow to sell; she is the money maker and the mortgage lifter.

But some will say this state of things (if true) can't last. Let us see:

There are now in America sixty-nine thousand registered females, and suppose one-half of this number are dead or not breeding, leaving thirty-five thousand

in active use, while there are fifteen million of other breeds of milk cows, the proportion being one Jersey cow to every four hundred and fifty of other breeds.

I think it was Mr. Coleman, of the *Rural World*, who, one time said that some would not have a Jersey, and it was a good thing, for there was not enough in the world to make one for each farm in the State of Missouri. Be that as it may, it will be a long time before there are too many registered Jerseys in the State of Indiana.

Fully three-fourths of the farmers' wives make butter to sell; some get ten, fifteen and twenty cents, depending on quality. Please refer to the Indiana Agricultural Report of 1883, and turn to page 250, and see there was produced in Indiana alone 29,591,841 pounds of butter; valued at fifteen cents per pound, \$4,438,777. There was slaughtered in Indiana the same year 101,085 beef animals, value \$4,043,400—\$95,377.

The butter was worth more, as shown by the foregoing figures. If this statistical report is not exactly correct, it shows the vast importance of the dairy interest, even in Indiana.

But some will say, I can't do what such and such a man does, for he has a fine herd of Jerseys. Please stop and consider that, perhaps, the man referred to only had one or two head eight or ten years ago, and his fine herd came from his judicious investment of a few good and purely bred Jerseys to start with. If you can't get a herd, you can get one or two, and with proper care the herd will follow, and the prices that you can obtain, winter and summer, for good Jersey butter, as compared with the butter from other breeds, will be most satisfactory.

For argument sake, suppose the Jersey has no selling value as a beef animal, but will produce as many pounds of butter each year at 25 to 30 cents per pound as the beef animal will put on pounds of beef. Who cares for the beefy termination of the Jersey?

A good Jersey cow will produce the equal of eight per cent. interest on \$500. Many are doing this, some are doing more.

We make no fight against the beef-breeders engaged in the honorable occupation. Men with large landed estates and ample capital may get a fair rental value for their lands and a moderate interest on capital invested. But this will not do for the moderate farmer, who has the unpleasant task of making a living, buying a home or lifting the mortgage from the one already bought. He must turn his attention to something better and to something that will produce more than interest if he ever expects to be able to pay the principal.

And the moderate farmer or renter can no more expect to produce beef at present prices successfully, coupled with men of large capital and the ranches of Texas and Colorado for pasturage, than the cross-roads blacksmith could engage in the manufacture of bridges or iron-clads. I one time saw a picture to advertise a fair, and the artist was a genius of no mean qualities, and that picture fairly represented Texas and the Southwest part of the United States with its beef breeds, and Indiana as she should be, a dairy State.

In the foreground of this picture was fine farms with clumps of timber and gently undulating prairies, and on these lands were quietly grazing the Jersey cow, while the background was a land so vast that it seemed to touch the sky and mingle with the clouds, and was lost to view in the distance.

This land was dotted over with Shorthorns, Longhorns and other beef breeds, and fairly represented Texas and the Southwest, with her vast herds of cattle, grazing winter and summer on her rich grasses, while between the two and back of the Jerseys was a small lake or pond of water, and in the middle of the pond stood a Holstein cow in all her glory.

Miss Kate M. Busick, of Wabash, Indiana, read a paper entitled :

DOES IT PAY TO KEEP A COW?

The nineteenth century is emphatically one of progress—such progress as the world has never heretofore witnessed. In every department of human skill and industry the watchword all along the line is “forward.” No laggards are tolerated; no loitering by the way is allowed; whoever keeps not step to the music of the advance, must expect to be left far in the rear, if happily he is not run over and crushed by the thousand eager, hurrying competitors, all rushing with headlong haste for the same goal; and the all-absorbing inquiry that attends the prosecution of every enterprise of the present day is, will it pay? For generations past the farmers have, in a majority of instances, been content to think the same thoughts their fathers have thought, and to do the same work their fathers have wrought, without ever stopping to investigate and see if there might not, by some possibility, be a better way. Like the boy we have all heard tell about, who, when remonstrated with for carrying a big stone in the end of the grain sack he was taking to mill, to balance the grist contained in the other end, replied that “his father had always done so, and he supposed it was the right way.” Without ever taking thought or troubling his mind, he persisted in the same course.

We are too apt to be wedded to our traditions, and are loth to change the practices of “the good old times,” when the farm and its accessories were managed more by faith than by common sense rules and regulations.

When the devout farmer, relying upon the Biblical promise that “Seed time and harvest should no more fail,” put in his crops in a helter-skelter sort of way, he expected the Lord to even up and adjust all deficiencies about harvest time, and thus offset all negligence and delinquency on his part, by the exercise of some “special providence,” because He had promised, “you know.” If the winter’s frosts and snows had mellowed and enriched his soil, so that he got his seed-bed in good condition for spring planting, the season was propitious and autumn found him with his granaries full to overflowing, his hay-ricks of generous size, and his cattle fat and sleek from their abundant summer pasturage. Why, if he was a pious man (and I speak it in all reverence) “The Lord had blessed him most abundantly.” If he was one of the other sort “He was considered a lucky fellow.” He just got everything right in the nick of time, etc., etc., and he glorified himself to the same extent because he fancied he knew just how the thing was managed. But suppose the season is what is termed a bad one, either too wet or too dry—the one farmer has his land well in hand, that is, completely tile-drained, well fertilized, pulverized thoroughly with plows and harrows; and notwithstanding the untoward weather, he reaps a fair average for his labor; his neighbor ad-

joining, who conducts his farm operations by *faith* alone, writes "*failure*" all over his broad acres. What maketh them to differ? The Lord, as in times past, sends rain and sunshine upon the just and the unjust, upon the idle and thriftless as well as upon the diligent and industrious; the same climate, the same soil, the same surroundings what then? The same factors that assure success in one case and permit failure in the other, that covers the ground with laughing harvests in one case and grows rank, noxious weeds in the other, are brains. The only difference, conditions of tillage, in which the one, by the exercise of judgment, common sense, call it by what name you will, puts forth his best efforts for success, leaves no stone unturned that will conduce to, and insure that success; the other simply follows the year's routine that has been his practice all his life, without a thought of change or a single effort for improving, then ascribes his failure to "luck" or the Lord, just as his devotional feelings chance to predominate; whereas the whole matter lies in a nut-shell; the one farmer puts forth every intelligent effort he can to guard *against* disaster; the other by calmly ignoring all extraordinary precautions, *invites* it.

There is an old legend related of Hercules, that is quite pertinent to the point I wish to make, and it is this: "Once upon a time," as the story writers say, a teamster got stuck in the mire with a very heavy load (there were no macadamized roads in those days, I opine, and the teaming was carried on by main strength and awkwardness). After vainly belaboring his patient oxen with clubs and curses to no effect, he began calling upon the god, "Oh, Hercules, help! Oh, Hercules, help!!" After a time Hercules made his appearance, and when importuned for relief told the irate teamster to "put his own shoulder to the wheel." Following this timely and pertinent advice, he was soon extricated from his difficulty and the load moved on. Moral: No matter what the vocation or surrounding, "the gods help those that help themselves," and in no one branch of farm life is this better exemplified than in the work and productions of the dairy, and the wise old saw of "no excellence without labor," is as forcibly illustrated in the making of butter and cheese as the getting of "book learning," and though I would by no means underrate the knowledge acquired from books, or even discredit many of the theories at present being promulgated, science is daily opening new avenues of progress and though she has many smatterers in her train, many empirics who blindly advance theories that are untenable and utterly at variance with the plainest conclusions of common sense, yet without the aid of scientific experiment, dairy knowledge would not have reached its present status nor taken the high rank it holds, even in some instances at least outranking the three R's, insisted on by the old-time school committee, "Readin', Ritin' and Rithmetic." The time when the milking and the making of butter was relegated entirely to the women folks and the feeding and care of the cow was left to her own ability "to rustle" for herself or starve, has, happily, gone by, and the farmer who persistently neglects his horned stock, is the exception and not the rule; and this brings me to the direct discussion of my subject: Does it pay to keep a cow? And if we can prove that it pays to keep one, by the same parity of reasoning, we will be prepared to demonstrate that it will pay to keep more. Without going into an exhaustive chemical analysis and details, we will simply take the oft-proven statement that milk is the

one perfect food in nature, that in itself and alone, without the aid and assistance of any other known substances, chemicals or compounds, it contains all the elements necessary to sustain animal existence (that it will nourish the toothless infant of a few hours, as well as the toothless octogenarian trembling upon the verge of dissolution), provide for the wastes of the tissues and promote the growth of bone, muscle and fat. Chemical analysis shows it to consist of albumen, caseine, butter fat or oil, sugar of milk, various salts and water. It is unnecessary for me to enter into a chemical analysis; that is more properly the domain of the analytical chemist; suffice it to say, you all know what milk is by actual experience. In different breeds of cows these several substances vary greatly in their several proportions. In fact so great is the preponderance of water in the milk of certain breeds (notably the black and white) that it has almost become an established hypothesis that some one branch of the "foundation stock" was, "in the long ago," the "town pump." I do not vouch for the statement, but be that as it may, an undue or excessive amount of water in milk, whether secreted and supplied by the cow herself or introduced by external appliances, deteriorates the quality and has an unwholesome effect upon the consumer.

According to the official analysis of the New York Academy of Medicine, which has been accepted as standard authority upon the matter, the proportion of water in the milk of a healthy, ordinary cow is 85.25 per cent.; the balance consists of the substances hereinbefore mentioned, with an appreciable portion of alkali, known as "ash." In a diseased or unhealthy animal the proportion of water has reached as high as 93 per cent., while its alkaline characteristics has been changed to acid; thus showing that the germs of putrefaction existed inherent in the milk itself in the living organism of the cow.

But as we did not start out with the intention of producing a long and labored article upon scientific analyses, will return to our original question, "Does it pay to keep a cow?"

With the best data at command it is proven that an ordinary cow, on ordinary feed and with but ordinary care, will make 150 pounds of butter a year, allowing two months for standing dry and calving. This makes an average of three and one-half pounds per week (certainly a very low estimate), which, at lowest market price, 12½ cents per pound (understand that I am speaking now of butter, and not that nondescript article of "cow-grease," sometimes by courtesy denominated butter), 150 pounds at 12½ cents per pound, \$18.75; her calf at six weeks, if sold to the butcher, would bring, say \$6. Her milk should average one and one-half gallons per day for three hundred days, amounting to four hundred and fifty gallons. This milk, after the cream has been removed for butter, is worth 5 cents per gallon, either to feed to pigs, for cooking purposes, or for family drinking. The cost for keeping in the manner I have indicated could not be over \$30.

Adding up the various products—

150 pounds of butter	\$18 75
One calf at six weeks, sold to butcher	6 00
450 gallons sweet skim milk at 5 cents per gallon	22 50

Deducting cost of keeping, leaves the snug little sum of \$17.25 on the profit side of the ledger in favor of the cow; and I have known families whose principal source of income, if not subsistence, was furnished by the family cow; but when you take a cow of superior butter blood, whose keep costs no more than the ordinary cow, but who will make from 250 to 300 pounds of butter per year (and there are hundreds such scattered through the country), it very materially enhances the amount of the income, while the labor, cost and care is but a minimum more.

I wish the time were permitted me to give you the sworn statements of some dozen or so of the prominent Jersey breeders and butter makers of our own as well as sister States; but I forbear lest some might think I was attempting to boom my favorite breed. I will simply relate a case of profit in common cows, with whose details I am personally acquainted. In the State of Missouri some eight years ago lived a family upon a small farm situated on what is known as the "Mississippi bottoms." Occasionally, by the breaking of the levee, these bottoms became inundated by the overflow of the river, many times sweeping away the accumulations of a lifetime of labor. At the time of which I write this farmer lost, not only his entire crops, but his cattle as well, and out of a well-stocked farm he succeeded in saving but three cows. Not only was his land irretrievably ruined by the inundation, but his family lost most of their effects and were almost destitute. Packing their few remaining household goods, they made their way to the city where they lived, bringing their cows with them, their sole earthly wealth. As both he and his wife were past middle age, there was but little prospect of their ever being able to retrieve their losses; but with a courage born of desperation, they set bravely to work to help themselves. At that time there was a large, open commons at the edge of town affording excellent pasturage; thither they removed, rented a small tenement near by and began the sale of milk. The husband devoted his time, being crippled with rheumatism, to the entire care of the cows; his old wife, more robust, carried the milk to the customers in a couple of gallon cans, a friend kindly advancing money to purchase the first lot of mill-feed for the animals. Their small herd increased year by year by natural process, their patronage likewise increased by honest, fair dealing, so that now they own their little home, a herd of twenty good cows, a horse and wagon for the delivery of their milk to their customers, and not a cent of indebtedness anywhere; proving most unmistakably, in their case at least, that it did pay to keep a cow.

I freely admit that with the present depression in almost every department of business ("strikes" and gas wells excepted), no one is accumulating wealth galore; but I do maintain that the individual who manages his business intelligently, looks carefully after the minor details as well as those of larger import, be he farmer, stock breeder or dairyman, will be found quite as generally at the front as the merchant, the mechanic or the professional man. Occasionally an era of low prices is a blessing in disguise. Why? Because it sets people to thinking, and when you set people to thinking, the impetus given will not stop at thought, but calls out their best reasoning powers as well as their best energies, utilizes reserved forces hitherto unused, that perhaps were never dreamed of as being possessed; heaves things out of the old ruts, and turns them into newer and more valuable channels.

Necessity is not only the "mother of invention" in mechanical arts and appliances, but the promoter of experiment and research as well.

The rapid increase of population necessitates a corresponding increase of facilities for the production of breadstuffs; for the hungry, toiling multitudes must be fed; and to meet the demand for bread, ways and means must be devised, not only to cheapen cost of production but to enlarge the scope of the same. If he is entitled to be called a benefactor of the race who "makes two blades of grass to grow where but one grew before," surely the individual who elevates the standard of the dairy cow so that she makes two pounds of butter where but one was made before, is equally entitled to be called a public benefactor. But has this been done? You have but to cast your eye over the dairy reports of the United States for the past decade, to be convinced that this and much more has been done. How? By judicious feeding and weeding. By judicious feeding I mean a careful selection of the foods necessary to stimulate increased milk and butter production. Do not misunderstand me, not as a forcing process by any means, but a common sense use of such foods as will best develop and bring into active operation all the latent capabilities of a cow; not by overtaxing her milk-secreting powers with unnatural stimulants, but in the selection of such foods as will keep her in vigorous health by repairing all the daily wastes of the animal tissues while supplying the essentials that enter into the products of cream and milk. It is as true of a cow as of the axiomatic principle in philosophy—"from nothing, nothing can come." Set the burrs of a mill in operation and the attrition of the stones, one upon the other, would more surely wear them out than the process of grinding. If no grain be poured into the hopper no grist will come forth. A cow is in the nature of the case simply a machine for turning the products of the soil into beef or butter. She can not do both, for if she excels in one, it must be at the expense of the other, and to be a success in either, the requisite food must be skillfully supplied.

What would you think of a farmer who, in the spring of the year, with a prospect ahead of a hard summer's work, fed his team on nothing but corn husks and bran, yet expected them to exert the strength of Hercules in putting the plow through stiff, unyielding soils in spring, or the heavy reaper in the heat of summer? Wouldn't you set him down as a fool, or at least lacking in that very essential qualification—common sense? Instead of starving his team, if he is a sensible man and a human, he endeavors to prepare his animals for the extra calls upon their strength by the generous feeding of strength-supplying food, with that end in view.

How is it with the cow? Since butter or beef is the object of her owner, she must be selected as well as fed, with that end in view. You wouldn't expect a heavy cart horse to show the gait and speed of a blooded racer. No more can you get beef and butter from the same cow. There never yet has been bred, perfected, devised or invented that thing called a general purpose cow. Hold, there is a pleasant fiction extant that there has been such an animal produced. She has been invented, the invention mainly lying in the brain of the owner, and not the only lying associated with her either, is of continental origin among the dams and dykes of Holland, kept sometimes for dairy purposes where Jersey milk can be ob-

tained to bring the whole up to a legal standard. Since in either butter or beef the farmer elects to secure his profits, there remains but two classes to choose from, and, of these two classes, Shorthorns and Jerseys stand as exponents. No one will question that the Shorthorn is pre-eminently the animal for beef, but for milk and butter she is an admitted failure. A prize animal often being unable to furnish the requisite nourishment for her calf, the services of a foster mother are called in to supplement the deficiency of its own mother. There is a tradition now going the rounds of the agricultural press, that years ago there was a strain of these cattle known as the "milking Shorthorns;" but search the length and breadth of our State and you will fail to find a trace of them; they always belong to some fellow over in another county. The distinctive difference between the beef and butter breeds is, in beef you must slaughter the animal before you can realize upon your investment; in butter, your cow perpetuates her usefulness in the productiveness of her progeny; in other words, she is not only a butter machine herself, but she produces other butter machines, for, while the product of the beef cow only pays by slaughtering, the butter cow pays her own way over and over every year, while producing other butter cows.

Take for example a Jersey cow that makes 200 lbs. of butter, a very moderate estimate, and raises a calf each year, and she more than pays her way, and her calf, if a heifer, in turn becomes a self-supporting, profit-yielding animal. As to whether the production of beef on the high-priced lands of Indiana pays, comes not within the scope of this article, and I leave it for others to decide, who are more conversant with the business. I do know that cream and butter pays, and that the Jerseys are the machines to make it at the least outlay of money and feed.

I come now to the consideration of the second element entering into my subject, viz: "Judicious Weeding". By this I mean that no one, be he dairyman or farmer, can afford to keep a cow, no matter what her race or lineage, that does not pay her way at the pail and leave a margin for profit. Time was when, if the farmer's wife and daughters could meet the family grocery bill with the sale of butter and eggs, the head of the house was usually content; never troubling himself about how much provender the cows ate, or how many bushels of grain the poultry consumed, beyond an occasional grumble perhaps about "the pesky critters" eating their heads off. If, occasionally a thrifty wife laid by a penny for a rainy day, why that was so much clear gain. Yet if the trouble was taken to ascertain how many pounds per week each cow made, what the value of the rations she consumed, what the ratio between the cost of feed and receipts for butter, he would in a very short time have been able to find out on which side of the ledger the largest sum was accruing; whether he was feeding certain cows at a profit or a loss, and he would in a very short time enhance the value of his herd, as well as swell his bank account by fattening and selling to the butcher the non-paying animals, retaining only the profit-bearing ones and their offspring.

By persistently following up this practice for a few years, he would be amply repaid in the greatly increased average of their butter production. Again, since "like begets like," if he would breed his selected cows to some animal of a known butter family, when the heifers resulting from such breeding came into milk, testing and rejecting the worthless ones, retaining only such as gave evidence of future

usefulness, he would be slowly but surely laying the foundation for the most profitable investment on his farm. By just such a course of judicious breeding and judicious weeding, has the present high standard of the Jersey as a butter cow been reached; and by that same process it has likewise been most effectually demonstrated by scores and hundreds of progressive farmers and their wives, that it does pay to keep a cow.

Mrs. A. L. Smith, of Princeton, Indiana, read a paper entitled, "The Dairy on the Farm."

A motion that the thanks of the Association be tendered Mrs. Worley, Mrs. Busick, Mrs. Smith and Mr. Godman, for the very able and instructive papers presented by them, was carried unanimously.

Mr. J. Cunningham, from the Swine Breeders' Association, asked and obtained leave to present and explain a bill reorganizing the Indiana State Board of Agriculture.

After explanation of the provisions of the bill, it was voted to refer the matter to a committee consisting of E. J. Howland, S. H. Godman and Wm. C. Smock.

This committee subsequently reported that the time allowed for consideration of the matter was inadequate, that the bill presented by Mr. Cunningham was crude and defective, that the committee was in favor of any wise and well considered legislation that would tend to make more efficient the Indiana State Board of Agriculture. Similar views were expressed by many members of the Association, and the committee was discharged.

The election of officers resulted as follows:

President—S. H. Godman, Muncie, Ind.

Vice-President—D. H. Jenkins, Indianapolis, Ind.

Secretary—Mrs. Kate M. Busick, Wabash, Ind.

Treasurer—H. H. Wheatcraft, Southport, Ind.

Executive Committee to Serve for Two Years—Samuel H. McKean, Terre Haute, Ind.; H. M. Baum, Frankfort, Ind.; E. J. Howland and Peter Raab, Indianapolis, Ind.

The views expressed in President Jenkins' address in relation to the duties of Indiana in making proper exhibits at the Columbian Exposition in 1892, were endorsed by the Association.

Theodore Wilson and William C. Wheatcraft were elected to membership, and the Association adjourned *sine die*.

SWINE BREEDERS.

The Fifteenth Annual Meeting of the Indiana Swine Breeders' Association was held in the lecture room of the State Board of Agriculture, State House, January 22, 1891, with Lloyd S. Mugg presiding.

Messrs. C. W. Jones, of Michigan, and W. R. Goodwin and P. H. Hammond, of Illinois, were elected to honorary membership.

President Mugg delivered his annual address as follows:

PRESIDENT'S ADDRESS.

GENTLEMEN OF THE SWINE BREEDERS ASSOCIATION—As I have been chosen to preside over your Fifteenth Annual Meeting, it becomes my duty to make a short address. We find the past year has been somewhat discouraging to the farmers and swine breeders, as corn has been scarce and high, and pork has been very low; yet we find there has been a ready call for good breeding animals, and as we look back over the past season we find that good prices have been paid for breeding animals, both at public and private sales. Now, let each of us endeavor to raise a better lot of pigs next season than we did last, as we may expect better prices. I think the prospects are for the better. We are called together every year, here at Indianapolis, as a body of farmers and swine breeders, and just look back for twelve and fifteen years and see the improvements that we have made in swine breeding. Some breeders say we can't improve them very much more; but brother breeders, just think for a moment and see if you can't see where there might be an improvement made yet. For instance, take the score card and take one of your best animals and compare them together, and see if you can't improve them. You all say the score card is the thing to educate a breeder as to what he wants. Friends, if it is a good thing to educate the breeder to breed for, why is it not what we want in the show ring, and have our hogs judged by it?

Worthy swine breeders, have you ever thought for a moment of the benefit our meetings are to us as breeders. We ought all attend them and become acquainted with each other, and have our method of feeding and breeding the different breeds of swine discussed; and friends, would it not be a benefit to you that have boys, that you are expecting to take your place, to bring them to our meetings. I could see no other plan better to start boys into the interest of the farm, than to teach them to raise good swine and other stock. We find a few young men breeding swine who attend our meetings, who commenced breeding hogs when but

small boys, and to-day they are as bright and as good judges as we have. And young boys and young men who are starting to breed swine, you have a good chance to become the best of breeders, as good animals can be got easily to commence with, and there are plenty of journals and newspapers before you, giving you the ideas of good breeders, which twenty years back could not be had.

I thank you for the honor you have conferred upon me as President of this Association.

In the absence of J. W. Pierce, of Peru, Col. Sturdevant, of Noblesville, Ind., was appointed Secretary *pro tem*.

Prof. W. A. Bell, of Indianapolis, delivered the following address on

WHY I FAVOR SWINE HUSBANDRY.

In order that this Association may know how much weight to give to what I may say, I will state that I am not a farmer, but an "agriculturist"—the difference being this: A farmer is a person who makes his living and his money off his farm, while an agriculturist is a person who makes his money in some other way and spends it on his farm.

I will state further that I was brought up on a farm but for many years have had nothing to do with farming until within the last five years. And when I still further add that I only recently sold my first installment of home bred pigs you will more fully understand the magnitude of the conundrum I have to solve—namely: "Why I Favor Swine Husbandry."

It is estimated that with a good hog and good corn and good feeding and good weather and good conditions, one bushel of corn will make ten pounds of hog. This is above rather than below the average. I sold my hogs at \$3.15 and could have sold my corn which I fed to them at forty-five cents. That is to say that if I had sold say ten bushels of corn I could have received \$4.50 for it, but having converted into hog I got only \$3.15 for it. Then in addition to this there was the labor in feeding and caring for the hog and in addition the risk of the hogs dying, which in my case was no small one, as the cholera has prevailed in the neighborhood since last September and got so close as two adjoining farms. Like Horace Greeley "I make on my hogs but lost on my corn." So, in the light of experience, it is hard to say "why I favor swine husbandry," unless I do it for my health or for fun.

I know I got some fun and think I got some health out of the enterprise, but my main purpose was money. I have heard it said that if you expect to find anything you have lost you must look for it where you lost it. On this principle I shall continue to try to make some money out of hogs. In fact I have made a little money off the few pure-breds with which I started. I shall soon have only pure-breds on my place and shall give some attention to improving the stock of the neighborhood—it needs it very much.

Furthermore I believe there is money in raising hogs for the general market. I find upon investigation that 1890 was an exceptional year. In looking up the statistics I find that in the past ten years the price has not been so low and in only

two or three of those years has corn been so high. In 1885 when pork came the nearest to reaching the rate for this year corn is quoted at thirty-two cents. Granting the basis of calculation to be correct hogs at \$3.20 and corn at thirty-two cents would exactly balance, provided you leave out of account the labor of feeding or the risk. But 1882 was the worst year preceding 1890 in the ten. The average for the ten years makes pork from \$1.50 to \$2.00 higher than the price for 1890, while the price of corn in 1890 is fifty per cent. above the average. As a rule the price of corn and the price of hogs advance and decline together, but the past year has proved a marked exception to this very general rule, for while corn has been exceptionally high, hogs have been exceptionally low.

The study of statistics brings out another fact, viz.: The price of pork is governed by the amount of production—the greater the production the lower the price, and *vice versa*. This is a general rule and always holds good except when modified by outside influences. Now when we state that production for 1890 was greater per capita of population than in any year for the past ten and with a single exception for the past eighteen years, we can readily understand the low prices. But all these figures show us that as a rule (there being but one exception in ten years) it pays to convert corn into hog before selling it. In other words it pays better to drive your corn to market than it does to haul it.

Furthermore these estimates have been made on the supposition that the hog eats only corn or other food equally as expensive. This is not the fact. Every ten pounds of pig does not cost the price of a bushel of corn. The hog eats a great deal on a farm that would otherwise go to waste and then the pasture and slops cost less than corn. This difference in the price of feeding material should be added to the hog's credit and count in favor of his culture.

Every kind of business has its ups and downs and the hog business is no exception to the rule. But both statistics and the combined experience of progressive farmers agree in the conclusion that swine husbandry, intelligently followed, will yield a fair return, taking one year with another.

DISCUSSION.

Joe Cunningham. The paper is a good one, and I will have to admit that the past year, at the price of corn, that it required pluck to stick to the swine business.

I. N. Miller. This is the first year I have ever had a loss in feeding hogs. The man who wishes to succeed in the hog business must have good breeding stock.

H. C. Oiler. I do not think the past year was as hard a year on the swine breeders as 1878. I sold at \$2.57½ per cwt., with corn at 40 cents that year. I think there is a good time ahead for us.

Prof. Bell. I have fed all my corn, have forty pigs that come last September, now how am I going to get out?

Chas. A. Howland. The way I did, I kept about 700 bushels of corn in the crib to bridge me over.

F. Beeler. I can remember when hogs sold at only \$1.25 per cwt., and you took your pay half in trade and half in State scrip.

I. N. Miller. In those times hogs were fattened in the woods on mast. Corn is worth now 50 cents.

Joshua Strange. This paper brings before us the ultimate future of the hog, and this question is of prime importance to the swine breeders of the State. I don't fear any loss myself, as I have my hogs all packed, and won't take less than \$3.25 per cwt. for them, as I fed them 50 cent corn, and can not afford to take less.

Joe Cunningham. Mr. Strange, what is a man going to do that has no hogs ready to pack?

R. W. Sanford. If he breeds up to the score card that Mr. Strange rails against, he will have none to pack, for he can sell all he can raise for breeders.

Mr. Strange. I have raised as many hogs as you have, in one case 127 head, without a call, and one sow raised twelve of the pigs; they looked like they had been moulded in one mould. I have learned some things, too, that you gentlemen can't get from the score card.

Mr. J. M. Dye. My experience has been different than most of you. I raised a few shoats and made money on them. I sold hogs at public sale and realized about 14 cents per pound, consequently made money. I expect a man might learn something by cutting hogs. I am a friend of the score card; there has been much improvement since the score card was originated.

Joe Cunningham. I never scored a hog myself, but have learned great lessons from the score card.

Mr. Mitchell offered the following resolution, which was adopted:

Believing that great good will result to the swine breeders of Indiana by the system of inspection, adopted by the Department of Agriculture, of our American meats, and we appreciate the earnest interest the Secretary of Agriculture has taken in this branch of our live stock industry; therefore, be it

Resolved, by the Indiana State Swine Breeders' Association, That we ask our Senators to take such steps, through the Department of State and Secretary of Agriculture, as will tend to remove all restrictions now imposed upon American meats by foreign governments.

Henry C. Oiler, of Russiaville. Should an expert pass on sweepstakes without the unanimous consent of the breeders, after having passed on classes?

On this subject I will say that, without a previous agreement has been made between the Superintendent, the breeders and the judges, the judge should be excused after passing on classes, and another man put on sweepstakes.

Col. Shepherd. I have some ideas on this subject. I am of the opinion that separate judges should be used on sweepstakes, for several reasons. First: I consider the mental and physical strain in a large show, in classes, is sufficient to incapacitate a man for work on sweepstakes. Second: A man passing on classes becomes more or less biased, no matter how honest he may be. He is fettered by his previous opinions, and has not that clear, open judgment of a fresh judge of equal capacity. The men who judge the classes should never pass on sweepstakes.

"THE BEST MANNER PREPARING PIGS FOR, AND MANNER OF SHIPPING."

J. Cunningham. I have been in Indianapolis for the past two weeks, working in the interest of the bill now before the Legislature, proposing a change in the State Board of Agriculture. I have had no time to prepare a paper. I will say on this subject, I always commence about a week before time for shipping pigs, to get them in condition. I put them in separate lots, feed different, giving less fattening feed, and attempt to have digestive organs in a perfect condition. I clean them often, and on the day of shipping I give them a special cleaning. I make a box to fit the pig, bed well, and for a long distance I put in a self-feeder; for 100 or 200 miles I simply use a small trough in crate. I would rather have a pig shipped to me on too little food than too much. Pigs fret more or less on the road, and if permitted to stuff itself, the worry, excitement and over feed will stiffen it up, and affect its digestion; so, when it reaches its destination, it is in no condition to show its good points, and it may not entirely recover from the treatment received on the road.

J. M. Dye. I would like to ask what change of feed you would recommend?

Joe Cunningham. I think lighter feed, not a radical change in feed, but quantity. I feed but little corn, use mostly oats, shorts and plenty of bran, adding a little corn to this mixture. Wet oats in a trough will last a pig to his journey's end, where distance is not too great, for both feed and water.

T. M. Reveal. My method is, enclosing the pig in a light, well-fitting crate, both in width and length; this is important to reduce express charges. Pigs do not require feed for a twenty-four hours' journey, but require water. I use self-feeders for long distances. I had a hog thirteen days on the road, had self-feeder in crate, it went through all right. Best wood for crates is lin or bass-wood. It is a good idea to fast or stint a pig twenty-four hours before shipping. I had a paper drawn on me to-day by the Adams Express Company, which I was forced to sign, as follows:

"In consideration of \$.....the proprietors of the Adams Express Company have permitted.....to transport in their cars and boats, or those used by them, the following articles, viz:..... from.....to.....at the exclusive risk of said.....and without any liability of the proprietors of the Adams Express Company, or of the Railroad Companies over whose roads said articles may be transported, for any injury, loss or damage which may happen to said articles by escape, death, detention, breakage, accident or any cause whatever. And the said.....hereby releases and discharges the proprietors of the Adams Express Company, and the Railroad Companies over whose roads said articles may be transported, from all claims, damages, and demands for any loss, injury, or damage that may happen to said articles, or either of them, whether the same be occasioned by carelessness or negligence of the Agents or Servants of the Proprietors of the Adams Express Company, or of the Railroad Companies over whose roads said articles may be transported, or otherwise."

It is a release, as they call it, and is now being enforced by that Company, be-

cause, somewhere about Terre Haute, they were forced to pay \$9 for a lost cat. This paper releases the Company from all loss, and then says, "whether the same be occasioned by carelessness or negligence of the agents or servants of the proprietors of the Adams Express Company, or of the railroad company over whose roads said articles may be transported, or otherwise." Brother breeders, this is an imposition, and we should fight it. I, for one, will send every hog I ship by freight, before I will sign another such paper as that.

S. M. Shepherd. You need not sign it unless you wish. I had one of them shoved at me; I said "No, I sign no such paper as that, and here's my stock; you take it or have the biggest kind of a law suit on your hands." Now I am not in search of business, but, if any of you wish to fight the case just send for me, pay my railroad expenses only, and we will soon prove the legality of that paper. Your signature on that paper amounts to nothing; no law will recognize such a release as that.

Joe Cunningham. If you want to bring them to time, ship by freight awhile.

Park Hammond. That's the way I do, or where it is only a short haul, by wagon.

Joe Cunningham then presented House Bill No. 209: A bill providing for the reorganization of the State Board of Agriculture. The discussion on it was spirited and consumed the balance of the afternoon.

Messrs. Mitchell, Strange and Merrifield opposed the bill, and S. M. Shepherd supported it. It resulted in the members present voting in favor of the bill.

Adjourned to 7.30 P. M.

EVENING SESSION.

The Association met promptly at 7:30 P. M., with President Mugg in the chair.

The following subjects were called up, but not discussed on account of the breeders being absent who were to present them:

"The Best Treatment of Chester White Hogs to Retain Fine Coats and Skin." E. Thatcher, Hillisburg.

"What is Good Treatment of Hogs?" John Harcourt, New Augusta.

"Is it Necessary to Feed Tonics or Powders as Appetizers to Retain Health and Secure the Best Results in Feeding Hogs?" James Riley, Thorntown.

R. W. Sanford, of Lebanon, Ind., presented the following paper:

THE RESULT OF FEEDING FOR THE SHOW RING.

Mr. President and Brother Swine Breeders: The above subject is one from choice, although after due consideration I see, to treat it fairly, leads to a more personal matter than the writer would otherwise desire.

Now, then, on introducing this subject, I shall be as brief as possible to bring out the amount of discussion desired. I will make my assertions without argument on my part and leave it before the house for discussion hereafter. In so doing I will leave out all "hearsay theory" and confine myself especially to my own practice, experience and observation of feeding, seeing and breeding.

There are two ways of bringing out individuals of swine into high prominence and notoriety. One of them is to feed and shape him for the show ring and give him an illustrious show record if it is in him. For example, Father Shepherd's Elected 8873 and President Mugg's Trenton Rock 7315, both with remarkable show records. Another way is to keep the animal at home in the breeding pen, grow him gradually, by long and careful attention, and he will be bowed to by the big bugs also. For examples, second, Friend Harcourt's Tecumseh Boy 4859 and Friend Reveal's Corwin Prince 1143. The writer prefers the latter way for a brilliant record. While the former animals show a goodly number of premiums for their get, the owners of the latter animals claim for their sires that none in the State can show more first premiums to their get in their day, says friend Reveal, for Corwin Prince and I will say fully as much for Tecumseh Boy.

Now for sample on sows: In 1888 I purchased quite a number of fine brood-sows at a very high price, from \$50 to \$100. In the number there were four yearling show sows with very high scores and sure winners. In less than six months three out of the four were as deaf as a chunk, two of which gave me trouble in catching while the others did not. The deafness did not hinder the motherly love and care for their young. If any difference it only added to their care, as they depended more on their sight and smell, and raised as follows: First, eight to ten; second, seven to eight; third, seven to seven; fourth, six to six. Two of the litters did fairly well, while the other two, their mothers being very fat, scoured their pigs badly and done very poor and sold as bad. I will also say that all the sows were bred to show-fed boars. Before I undertake to leave this point, I would say right here, I had six other very fine sows, none of which had been fed for show ring and none of which had lost their hearing, none of which scoured their pigs so bad or smashed their feet, all of which were running in the same range and faring the same. Furthermore, my partner, Mr. Sears, says, "In my time I have had two deaf sows, both of which were fed for show ring, while I remember of no others losing their hearing from any cause." And again, the fine yearling Trenton Rock, Jr. 8371 which we owned, fed, showed and won honors with and exchanged hands in our company at the net sum of three hundred dollars, has proved, so far, an entire failure as a breeder, and even refuses to render his service to a sow. He has been amply reduced in flesh and is apparently in good health, but his sexual organs have almost withered away since being fed for the show ring.

We will call your attention to the fact that there are but two show-fed animals in the Harcourt Bros. herd and those are Victor 7314 and his dam, Perfect 2d 1744, the latter being re-fed for show and almost if not entirely deaf. We do not care to add further to our list of deaf individuals, which, as we claim, are caused by high feeding for show purposes.

Found at Last 5499, which we showed in 1887 or 1888, was, as a yearling, a hog of uncommon style, gloss and finish and much vigor and nerve, and when re-fed for 1888 still possessed much of those desirable qualities and won for me five straight first premiums. But take care, when I reduced him the second time. He was sluggish and dull and slow to render service, if at all. He was too heavy for any sow without assistance, and then not so sure, and when reduced to proper weight was wrinkly, so much so that he put me in the mind of a little boy with

his daddy's breeches on; besides he became scurvy and near dead, and I thought did not breed so well. Casander 4297, a show pig but never fed later, sired me a litter that was fine and large enough to bring the big prices. Black Joe F., a very large, fine and remarkable show hog, sired a subsequent litter by the same dam, which was small and worthless, and which I sold at common stock prices. But when I went to pay Mr. Brown he said: "Now, sir, if Black Joe F.'s breeding is no good I want nothing."

Our worthy president, Mr. Mugg, fed and fattened Found at Last 2d 2021, for which he had refused the equivalent to \$500, and the result was that he took cold on the show circuit and died. We have heard of one Mr. Williams, who some years ago fed a two-year-old boar by the name of Benick for show purposes, which swept everything before him like the Johnstown flood, and even took the honors at the great St. Louis Fair. He was very large and fat, and Mr. Williams did not attempt to breed him, but then and there sold him to a soap factory for soap grease. This case was more than likely an extreme one, and on the other hand, or rather extreme, there has been doubtless many fine breeding animals that have been fed for show ring which have been carefully fed and in such a way as not to break them down physically. Again, many of us know that there are some individuals that are naturally good shaped and in medium flesh, and do not take so much flesh to round them up. But poor old Benick, we imagine him to have been as long and lean as a rail fence and took a crib of corn and a year's time to feed it to make a half ton of pork cover up his old skeleton to make him look like a show hog.

Now, in conclusion, let me say that I do not think it hurts pigs to be fed and showed, but let me say to you seriously, if we feed hogs one year old and over for show at all, do not repeat the dose if you value their breeding qualities.

Now, the text and we close. Result of feeding for the show ring—the result I affirm as follows: It impairs the general health, strength and vigor of the whole body; it smashes their limbs and feet; it constipates their internal organs; it distorts their shape; it affects their sexual organs; it wrenches and scuffs the skin; it dulls the gloss and finish to the coat.

DISCUSSION.

Mr. Oiler. I think Mr. Sanford is right about over-feeding for the show-ring. I lost the use of a \$200 boar by over-feeding.

Col. Shepherd. I never had but one hog go deaf, old "Black Bess," but her mother before her, and two sisters, were affected similarly. I thought it hereditary. I fed up "Old Sweepstakes" four times for the show-ring without any loss of vigor or breeding qualities. "Jim Crow" was also fed up as a yearling without any bad effects. I have fed up a good many sows and campaigned them through a Fair Circuit without the loss of breeding qualities. My friend Sanford's experience is not usual, I think. "Tom Corwin" was fed up twice, "United States" three times, "Old Billy" three times, six years old the last time; "Give or Take" once, and all were good breeders afterward.

Mr. Oiler. I had a boar weighing 450 pounds, fed up so his testicles would not show unless a sow was exposed in heat. I had much trouble in bringing him back; had a boy drive him around a twenty-acre lot to get the fat off of him.

I. N. Barker. Did it reduce the flesh on the boy also? [Laughter.] Never had any bad effects from high feeding with my young hogs. Don't know about aged animals, as I have had but little experience.

Joe Cunningham. The trouble is in reducing the flesh when you get home after high feeding. Have fed up many boars, but never had one to fail me on that account. Just take him and turn him out when you get home. I don't believe a sow that has been fed up will farrow as large pigs as one that has not. My old boars get milk every day. Renton the 2d, 4225, was shown fat at three years old; the fourth year he got good litters.

T. M. Reveal. Have had sows to go deaf; think it is part hereditary, and from vermin getting in the ear, but not from over-feeding. A hog is improved by feeding well, and has more nerve. There is greater risk in over-feeding a sow than a boar. Always try to get them in pig before feeding up, as it takes a long time to take the fat off. It is easy to reduce a male. The highest price ever paid for a hog was one that was fed up.

Mr. Oiler. Don't hogs limber up when reduced, especially sows?

T. M. Reveal. I don't know.

Mr. Sanford. I think Lloyd Mugg and Colonel Shepherd have a secret in feeding up.

Col. Shepherd. Feed eggs, one-fourth dozen a day, and plenty of milk to show hogs.

The Association entered into the election of officers, resulting as follows:

President, I. N. Barker, Thorntown, Ind.; Vice-President, Ellis House, Bicknell, Ind.; Secretary, Cal. Sturdivant, Noblesville, Ind.; Treasurer, J. Cunningham, Bunker Hill, Ind. Executive Committee, H. C. Oiler, Russiaville, Ind.; A. L. Harcourt, New Augusta, Ind.; W. H. Morris, Indianapolis, Ind.

Treasurer's report was then received and referred to auditing committee.

"WHAT ARE THE PROFITS TO BREEDERS AND FEEDERS IN ATTENDING THESE MEETINGS?"

Mr. Oiler. Getting acquainted and exchanging experiences, learning by hearing others talk are the profits of these breeders' meetings.

I. N. Barker. The experience and information we get here fully repays us for our attendance. Farmers are always benefited in many ways by attending these meetings. Nothing has kept pace with the improvement in the swine industry on account of these breeders' meetings.

Mr. T. M. Reveal, Joe Cunningham, Messrs. McDowell, Aikman, Hornady, Sanford, Col. Shepherd and Harcourt all testified to the good results obtained and benefits accruing from holding breeders' meetings and exchanging views as to the proper treatment and care of swine.

The Chair named Col. Shepherd, T. M. Reveal and H. W. Smith as the Committee on Programme, to report to the Secretary in the interim between now and the next annual meeting.

Treasurer Hessong submitted his annual report, as follows:

As Treasurer of this Association I respectfully report the following for year ending January 23, 1890:

Whole amount of cash received \$49.00. Out of which I have paid to J. W. Pierce, for services rendered as Secretary of this Association, January 23, 1890, \$25.00.

To Emmet L. Rose for services rendered as reporter, \$12.00. Leaving a balance in Treasury, January 23, 1891, of \$12.00.

Adjourned to 9 o'clock A. M.

JANUARY 23, 9 A. M.

The Association met pursuant to adjournment. The subject of finances was taken up and discussed at length and the yearly membership fee of \$1.00, as originally collected, was voted to be again in force instead of 50 cents, the amount charged last year. This was done to relieve the Association of indebtedness incurred by order of the Executive Committee.

The Committee on the Revision of the Premium List, consisting of Messrs. House, Reveal and Dye, submitted the following, which was adopted:

Resolved, That the members of the Indiana Swine Breeders' Association ask of each Agricultural Society of the State to adopt the same classification in swine as the State Association of 1890; also, make the premiums according to their previous lists. If they can't give cash premiums in all classes, they can give a complimentary.

Resolved further, That the exhibitors know beforehand what to get ready to show and will not have to carry any surplus stock with them, thereby saving them expense, and one herd can be shown at any Fair.

The subject of "Members who were Assigned Papers on the Programme and Failed to Prepare them," was discussed at length, and it was the general expression that a failure to prepare a paper assigned a member, without a valid excuse, would not be overlooked next year, and that an explanation would be in order.

Joe Cunningham offered the following, which was adopted:

Resolved, That the Indiana Swine Breeders' Association endorse and recommend the passage of the dog law formulated and recommended by the Indiana Wool Growers.

After an informal discussion on various subjects presented by members, the Association adjourned *sine die*.

WOOL GROWERS.

The sixteenth annual meeting of the Indiana Wool Growers' Association was held in the lecture room of the State Board of Agriculture, State House, opening January 21, 1891, at 1:30 P. M., Hon. I. N. Cotton, of Traders Point, presiding.

Vice-President Cowgill was called to the chair and President Cotton read his annual address as follows:

PRESIDENT'S ADDRESS.

Gentlemen of the Indiana Wool Growers' Association:

For sixteen years we have met annually to discuss the wool and mutton interest of this great State of ours and in all this time there has been no lack of interest in these meetings; each member who has been assigned a subject has discussed it with a will, giving some light to his fellowman, and thoughts that we can improve upon. And while sheep husbandry has had its ups and downs, sometimes increasing, sometimes decreasing, to-day it is on the ascending scale and has reached a higher altitude than in the last decade.

After addressing letters to intelligent farmers in the different sections of the State and from personal observation, I think that I am safe in affirming that the flocks in this State have doubled in number in the last year; this does not imply double the number of sheep in the State, but it does imply a rapid increase in the next few years, if the wool interest is not interfered with by Congress and mutton continues to bring good prices. For the farmer to-day is reaching out for more sheep and there are more farmers starting small flocks than there has ever been in this State; the farmer that can not get twenty or thirty, takes five to ten ewes with a buck, and in a few years the sheep in Indiana will materially increase to the benefit of the farmer in relieving productions of the farm. The farmer that starts a flock of sheep must raise less wheat, keep fewer hogs and less cattle, thereby relieving the pressure on that class, and at the same time supplying a deficiency in the wool and mutton market, thereby reaping a double profit, one on the sheep and one on the lessened production of our cereals and live stock.

If you think that you can not afford to start with thoroughbred ewes, get some natives or grades and a thoroughbred buck, and you will be surprised how soon you will have a good flock of sheep.

Is it worse to attempt to change the wool-producing sheep into an indifferent wool and mutton sheep, or the mutton sheep into a wool sheep? Why not see that the whole tendency of the times is toward specialties, and through the division of labor the greatest results are obtained.

We should not destroy the elective principle in our sheep by trying to get mutton and wool to their fullest extent from the same sheep, for when you develop mutton to its greatest extent you have a sheep with an elective principle that converts feed into muscle and fat, and when you develop wool to its greatest extent, you have a sheep with an elective principle that converts its feed into wool principally. For it is no use denying the elective in the animal or vegetable kingdom, for in our cattle as well as in sheep, we have been unable to produce beef and butter to the maximum in the same class of cattle. And the vegetable kingdom shows the same elective principle. You plant your corn, potatoes and melons in the same soil, under the same sunshine, rain and dew, with the same cultivation, and they are able to elect from these elements the properties that are contained in each separately, and when we violate that principle, to any great extent, in the sheep or cow, we are losers.

In the sheep, the wool is its natural covering, and climate and treatment has much to do with that covering, and in the large mutton-sheep it takes more wool to cover it than the smaller one, yet the Merino of one hundred pounds weight will produce more wool than the three hundred pound mutton-sheep.

As to the class of sheep we should keep, we should take into consideration soil, climate, feed and markets.

There is an increased demand for mutton in this country in the last few years, and this demand will stay with us to an increasing extent, as it has in many older countries, and with the increase of wealth and civilization comes an increased demand for wool per capita.

Now, gentlemen, if we can stimulate the farmer to increase the number of sheep in this country one hundred per cent., then we shall supply this country with wool, and what would the increased production of 300,000,000 pounds of wool in this country mean? It would reduce the production of wheat, corn and oats, and lessen the amount of pork and beef produced, while it would give us a multitude of spinners, weavers and tailors to feed, they consuming our bread and meat, reducing our surplus in this line. If we should grow at home all the wool we now consume, that would mean the retention in this country of all the money that we now pay for foreign wool, greater profits for the farmer class and better wages for the laborer.

The way to get cheaper clothing is to increase the wool product until we get a surplus and are seeking a foreign market, as we are with our bread and meats. An increase of wool means a decrease of bread and meat in two ways: First, a less production; second, a greater consumption.

It has been affirmed that we can not raise sheep on our high priced lands in the United States. I will answer that by asking how England can raise sheep on her lands with their high rents? And, again, we have plenty of cheap lands in this country to supply our wool and mutton, and yet experience shows that sheep can be kept on hundred-dollar land in mixed farming at a profit.

There appears to be a demand for a better dog law, that is a law, that will protect the sheep more and the cur less. The Farmers' Alliance has spoken, and hundreds of others. The farmers in this vicinity have rid themselves of one nuisance, the hunter with bird dog, by organizing and enforcing the hunting and trespass laws of the State. I would recommend making a strong demand on our Legislature for an improvement of the dog law.

At the urgent request of the Legislative Committee of the National Wool Growers, and after consulting with several members of the this Association, I issued a call through the *Indiana Farmer*. The object stated in the call was to take action on pending legislation in Congress, in regard to the tariff on wool. The attendance was small, but I received several letters from members, expressing their views on the subject. We passed a resolution endorsing the wool clause of the McKinley Bill, and sent it to the committee and adjourned.

I would ask your consideration of the propriety of a law for the prevention of killing quails for four years, and if you deem it expedient, to take such action as you think best. It would save our sheep much disturbance.

It is with sorrow that I call your attention to the death of an old member of this Association, a man of science and thought, one who spent his early days in the sheepfold and pastures, and was as gentle as a lamb, Dr. Ryland T. Brown. Hoping that you will take such action in relation to his death as your judgment may direct, and that it may be spread on the minutes of this Association.

It is the only death among our members that has come to my knowledge.

In conclusion, gentlemen, let me congratulate you on the progress of sheep husbandry in Indiana in the last year, on the price we have received for our breeding and mutton sheep, and probable stable market for the fleece for some years to come.

J. W. Robe, Fielding Beeler and C. A. Howland were appointed a committee on President's address.

Mr. Beeler. I wish to call attention to the point in the address in regard to flocks of sheep doubling within the last year. I wish to have an opinion of the wool growers from different parts of the State on this question. I have thought much about it, and think perhaps the estimate is overdrawn.

President Cotton. There are a number of men who have small flocks of sheep in different parts of the State. It is always in order to discuss the President's address.

Hon. Calvin Cowgill. I can not speak of any considerable section of the State, but I think I am warranted, sir, in saying in that section of the State where I live, the flocks have trebled, if not quadrupled in number. I have been in the habit of keeping a small flock of sheep on my farm for many years, and I think, sir, I am safe in saying that there has been ten fold, and I am not sure but twenty fold, more inquiry made to me for sheep for breeding purposes than a year ago. It has been somewhat difficult in keeping sheep on my farm without asking fabulous prices, so impertunate were the purchasers.

Hon. A. V. Pendleton, Nineveh. I was of the same opinion of Col. Beeler. I do not wish to raise an objection to this statement made in the President's address, yet I do not think, however, it is correct. In my county (Johnson) while there is

an increase in the number of flocks, there certainly can not be double the number; it would be impossible. While I agree with the President that sheep husbandry is on the increase and there is a greater demand to-day in my part of the State, and indeed, all over the State, for good breeders and good classes of ewes than has been grown for twenty years.

J. W. Robe, Greencastle. I do not know that I can answer the question directly, but I have sold from my flock all I care to spare and have started as much as five different flocks in my neighborhood with from five to ten in a flock.

J. L. Thompson, of Arcana. I am certain in our county (Grant) and surrounding counties that the flocks have more than doubled in number. I know of no man who has sheep to sell, but any amount of flocks have been divided up into small flocks. We have, alike with all other breeders, had a more extensive trade the past year than ever before.

J. Jackson, Tipton. When I first began talking of letting sheep out on the shares I could not get a man in my neighborhood to take sheep that way, but now I can't supply one-fourth of the demand. I have now over two hundred head and aim to put them out in small bunches, as there seems to be a great demand for them.

I. N. Colton. How many flocks have you put out since you commenced this plan?

Mr. Jackson. I have put out about one hundred head; ten flocks in the last year.

W. M. Wiley, New Augusta. My experience has been very similar to that of Mr. Robe and Mr. Thompson. I have sold all I want to men to start new flocks, who have had no sheep for several years. I think the number of flocks in my section of the State has more than doubled within the past year. I have had calls for more than I could supply.

Uriah Privett, Greensburg. I can say that this year I sold everything I had to sell and could have sold double the amount. As far as the increase of flocks in our county is concerned I think I may safely say it has been five fold and the flocks' increase as much as ten fold. Our county in the past has not been much for sheep, although I have been engaged in the business there for twelve or fourteen years. They seemed to want cattle and hogs, but now there seems to be an interest in sheep husbandry and everybody is getting sheep, and good flocks.

Mr. Thompson. Mr. Privett's experience in starting in that business is very similar to mine. I have been working for fifteen years, and my neighbors seem to be the last to take hold of this industry, but now there are many good flocks in our neighborhood, and owned by men who I thought would never have anything to do with them. I feel sure that our President has not made an extravagant statement in his remarks of the increased number of flocks; these are in safe limits to take the State over.

T. C. Phelps, Greensborough. I may say in our county (Henry) the flocks have not near doubled. While many flocks have increased in size, the number of flocks have not perhaps increased more than one-third in our county.

J. W. Robe. I see Mr. Hayes, from our county, is here, I would be glad to hear a few remarks from him on this subject.

Mr. W. A. Hayes, Worthington. Mr. President and gentlemen, it is hardly fair for Mr. Robe to call on me to speak on this topic, as I am not a sheep raiser, but I am interested in sheep and expect to breed a few. As far as our county is concerned, we have much interest in the industry.

Mr. Robe. We wish to know as to the increase in the number of flocks.

Mr. Hayes. I can not say that the number of flocks in my section have increased much; there is considerable inquiry for sheep, and prices tempted them to part with all they had.

J. R. Tomlinson, Fairland. Not only have our sheep increased gradually; probably the reason of this is from 2,000 to 5,000 sheep have been sold from our county (Shelby) the past year.

The Association spent a short time receiving annual dues.

On motion of Mr. Thompson, Mrs. Richardson was made an honorary member.

Hon. A. V. Pendleton, of Nineveh, Ind., presented the following paper on

"THE WOOL AND MUTTON INDUSTRY OF THE UNITED STATES."

He prefaced the reading of the paper by saying:

"I do not wish to sail under false colors. I have no sheep now and have not had for many years. I asked protection, but not from a high protective tariff (I had then a flock of sheep), but from our Legislature, from the ravages of dogs, which come in and destroy our flocks. The bill was presented in 1877 by this body, and through its influence we got a dog law, but what did it amount to? The bill was so changed before getting it through that it protected the dog instead of the sheep. They came into my flock and killed and maimed so many that I became disgusted, and have paid but little attention to sheep husbandry since. I will say my flock was the ideal of my heart and I think I will continue the business. I will now read what I have written:"

I have no apology to offer in presenting this paper and the thoughts that it contains for the consideration of this intelligent body of wool growers in Indiana. Not having been originally placed on the programme, this paper is presented by the request of one of the members of this Association to whom was assigned the subject for discussion, but whose other duties and obligations prevented him from discussing the question proposed in a manner that its importance demands, and its merits require at our hands, as representative of a vocation that is a storehouse of wealth to our nation, and a source of happiness and comfort to all.

It is needless to say that any question connected with the animal industries of our country is of overshadowing importance to the whole people, since the larger portion of our wealth has come from these industries, and will continue to be drawn from these sources to a greater extent as the years roll on and the population of our country increases in numbers and civilization.

We are living in an age of rapid advancement in all things tending to our prosperity as a people, in which mind controls our destiny, and governs the action of men. We are living under a new dispensation of ideas and methods, evolved

from the storehouse of knowledge and experience, while old ways and old methods are relegated to the shades of the past. "Old things have passed away, and all things *have* become and *are* becoming new," is as true of farming as anything else.

The virgin soil, that formerly responded so liberally to the hand of the husbandman, is rapidly failing in fertility from the heavy drafts that have been made upon it. Commercial fertilizers and better methods of cultivation are resorted to, in order to restore its former fertility and bring a better return for the labor bestowed. A well bred flock of sheep, proportioned in numbers to the size of the farm, will in time bring about the desired restoration of the soil, and become a source of pleasure and profit to the farmer who cultivates his worn-out fields at a loss.

But the question arises at the threshold of this subject: Will it pay the farmer to rely on sheep-husbandry as a permanent investment as a part of the products of the farm? Unhesitatingly, I assert that it will. Like all other industries the raising of sheep has its tides that ebb and flow, bringing at times large profits, and at other times smaller ones. The fluctuations in prices of both wool and mutton are no greater than of any other farm product, when left unhampered by speculators and capitalists. Like the products of all other industries, the law of supply and demand controls both wool and mutton, and any interference with this universal law will only work an evil, and finally result in disappointment and failure. I assert without fear of successful denial that there has not been a decade in the last fifty years, that the raising of sheep has not brought fair profits to the owner of the flock, where they have been judiciously bred and properly cared for. At the present time, while wool continues low, the price of mutton is correspondingly high, and the demand for good mutton sheep is greater than the supply. Taking into account that mutton can be produced 20 per cent. cheaper than beef, and 50 per cent. cheaper than pork, the profits are decidedly in favor of sheep raising, even when we take no account of the fleece, that in any year will pay the cost of keeping.

In our western markets the price of beef ranges from $3\frac{1}{2}$ to 4 cents, and pork from $3\frac{1}{4}$ to $3\frac{1}{2}$ cents per pound, live weight, while mutton is quoted from 5 to 6 cents per pound, live weight, and spring lambs readily bring \$5 and \$6 per head. While we are selling every other farm product at a loss, and below the cost of production, the farmer that has a well-bred flock of sheep is selling his product at fairly remunerative prices.

But so far we have taken no account of the fleece as a part of the product in sheep-husbandry. Like every other product of the farm, wool will bring in the market just what it is worth, and no more. The profit to the farmer in wool growing is due to good management and care of his flock and proper breeding, and a failure to observe these requirements will result in loss of profit, and the fault will lie at his own door. The slack-twisted farmer, who has become fossilized in his ways, and whose mental vision is only enlarged by reading last year's almanac, and who thinks that "A little learning is a dangerous thing," raises a crop of wheat averaging eight bushels per acre, for which he receives eight dollars per acre, wheat being worth one dollar per bushel. His neighbor, who attends Farmers' Institutes, reads our best agricultural papers, and keeps abreast with the times by using

his brains to some purpose, raises 25 bushels of wheat to the acre on an average, for which he receives \$25 per acre for his labor, wheat being one dollar per bushel.

The farmer who has a flock of 50 sheep, that shears on an average five pounds of wool to the sheep, making a total of 250 pounds, receives \$75 for his clip, wool being 30 cents per pound. His neighbor, who owns an equal number of an improved breed of sheep, from which he shears an average of ten pounds to the fleece, making a total of 500 pounds, which, at 30 cents per pound, brings him \$150. Now, if in this case an average of five pounds to the fleece will pay the cost of keeping the flock, an average of ten pounds would pay a profit of \$75.

If this statement is practical, and flock owners would act upon it, they would in time solve the problem of wool-growing for profit, and of supplying the deficit of 300,000,000 pounds of wool imported from foreign countries to meet the requirements of our manufactories. Let flock owners labor earnestly to this end, and cease clamoring for a high protective tariff on wool, that never has resulted in any permanent benefit and never will, or looking to Congress for aid, whose aggregate ignorance of this question would fill several volumes.

That this is a practical solution of the question of profit to the wool-grower, and of an adequate supply of wool on our markets, let reference be had to statistics. In the year 1840 the average weight of the fleece in the United States was less than two pounds. In 1850 it was 2.42 pounds; in 1860 it was 2.68 pounds; in 1870, 3.52; in 1880, 4.79 pounds, and in 1890 the average weight of the fleece is estimated to be 6 pounds. These figures show a slow but steady increase in the average weight of the fleece, more than trebling in fifty years. They also show the possibilities of wool-growing when directed by intelligence and in the proper channel. Had the wool-growers of the United States manifested the same zeal in the improvement of their flocks that is manifested by the breeders of the other animal products of the farm, there would doubtless be at the present time an average of ten pounds of wool to the fleece, instead of six pounds as reported. This would have been a saving of sixty to eighty millions of dollars annually to the flock-owners of the United States, instead of going into the pockets of foreign sheep-raisers.

There are several things that militate against the interest of the wool-growers of the United States, over which we have no control, but which will remedy themselves when our people get to see the error of their ways and have a proper regard for the interest and welfare of our country. The American people are the slaves to the caprice of fashion, and manufacturers are ever ready to cater to these caprices, regardless of all other interests save their own. We like anything in the way of fashion that has a foreign name and is of foreign manufacture—anything “English, you know.” Our manufacturers send abroad for wool of an inferior grade to our own, and by false ratings and the use of adulterants the government is defrauded in part of its revenue, and by putting it on a par with our own wool of a superior quality, our own product is cheapened and brought into disrepute. Cheap shoddy goods, manufactured from old clothes and the refuse of the coarser wools, and palmed off on the people, has a tendency to degrade our own product. But it is useless to discuss evils that we have no power to remedy or change. “What can’t be cured, must be endured.”

As wool-growers we will have to accept the situation as we find it, with all of the adverse conditions that confront us, and the environments that trammel our progress.

That there has been a large falling off in the number of sheep in the older States of our country, no one conversant with statistics will doubt or deny. The fact that sheep-raising in most of the older States is, and has been, on the decline, leads to the inference that, as an industry, it is declining throughout our whole country. This inference is fallacious and misleading as statistics clearly show. In the year 1840 there were, in round numbers, nineteen million of sheep in the United States. In 1887 we had, in round numbers, forty-five millions, showing a steady increase during these decades throughout our whole country. In 1840 the State of Maine reported, in round numbers, 649,000 sheep; in 1880, 565,000. New Hampshire had, in 1840, 617,000, and in 1880, 211,000. Vermont reported, in 1840, 1,600,000, and in 1880, 439,000. In Massachusetts, in 1840, there were 378,000, and in 1880, 67,000. In 1840 Connecticut had 403,000, and in 1880, 59,000. The six New England States had a total, in 1840, of 3,820,000, and in 1880, 1,362,000, which shows a falling off of 2,458,000. The Middle States, including New York, New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia had, in 1840, a total of 7,403,000 sheep, and in 1880, a total of 3,800,000, a falling off of about one-half. Of the Western States east of the Mississippi River, Ohio and Michigan have barely held their own in numbers, while all the others show a marked decrease. The Southern States show an increase, owing mainly to the large area in Texas devoted to sheep raising. Texas, in 1850, reported 100,000 sheep, and in 1880, 2,400,000. The States and Territories west of the Mississippi River have rapidly developed the wool and mutton industry, and they bid fair to become, in the near future, the great wool-growing States of our country. On the Pacific the wool and mutton industry shows a more rapid development than any other portion of our country.

California, in 1850, reported 17,000 sheep, and in 1880, 4,152,000, and the number in 1890 is estimated at 6,000,000. Let us contrast this immense increase in California with the decrease in the great State of New York, which reported 5,118,000 in 1840, and in 1880, 1,715,000, a decrease in forty years of 3,403,000.

Although not pertinent to the subject under consideration, the decline of sheep husbandry in many of those States shows a decline in farms as a result, I think. The State of Maine shows by her statistics for the year 1890, that there are over 3,000 abandoned farms within her limits. The States of Vermont and New Hampshire show each about an equal number. This is not a creditable showing and is a sad commentary on the methods of farming in those older States, and is largely due I think, to their abandoning sheep-raising. The farmers of Indiana are beginning to realize the baleful effects of the constant drafts made upon the soil, and could I reach their callous ears, I would speak in no uncertain tones, and urge upon them to cease the hog and hominy business and go to raising sheep.

But we are led to inquire into the cause or causes of the decline of sheep-raising in the older States of our country. The chief, and as I believe the most potent cause to which this great falling off is attributed, is, that the sheep like the emigrant, is migrating to cheaper lands. "Westward the course of empire takes its

way," "And the sheep have followed in the wake." The Pacific Railroads with their numerous branches have opened up a country in area greater than all the other States combined, and richer in pasturage than any other portion of our country. These inviting fields have tempted the cupidity of capitalists, against whose greed there is no law, who now occupy them with countless flocks of sheep. These lands are almost valueless for anything but grazing. The expense of care and keeping is but a bagatelle compared with the cost of keeping our flocks in the older States. About all the equipments necessary for several thousand sheep, are a few shepherds with their dogs and ponies. The markets are brought to their doors by those arteries of inter-state commerce—the railways.

We need not wonder, then, that sheep raising has declined in the States east of the Mississippi, and been transplanted in those inviting fields where the expenses are small and the profits large. It is not the competition of the flocks of far-off Australia, nor of South Africa, neither the flocks of our nearer neighbors, the Argentine Republic and Mexico, that we need fear. The ranchmen of the West produce wool and mutton as cheap as any of these, and of better quality than most of them, and at a great deal less cost than we can.

With all due deference to the opinions of others, I affirm that all the legislation upon this question has not, and could not, change these results, whether in favor of high tariff or low tariff. The conditions remain the same, and are inevitable.

"It is a condition that confronts—not a theory." All classes of our people have a jealous regard for their own individual interests, nor need we hope for the fostering care of our Government in preference to others equally meritorious. The theory of protection was never contemplated by the founders of this Government in its organization, nor has it ever found a permanent lodgment in the hearts of the American people. Whatever may be our views regarding a paternal government, the fact remains that Uncle Samuel has a very large family of sixty-four millions, whose interests are as diversified as our climate and country. Sixty millions of this great family have no direct interest in sheep husbandry, but they have interests that equally need the fostering hand of our paternal Government. Twelve millions of this vast family have no capital save their brawn and muscle, nor do they have any direct interest in sheep husbandry, but they have an interest in cheap clothing to protect them from the rigors of a changing climate. As farmers, we are demanding in thunder tones relief from burdens that trusts and combinations have placed upon our shoulders, made possible by class legislation, and it ill becomes us to ask special favors in our own individual interests. We should view this question in the spirit of fairness and justice, keeping the Golden Rule in view: "As ye would that men should do unto you, do ye even so to them."

In closing, I wish briefly to notice one other cause of the decline of sheep-husbandry in the older States of our country, and point out a possible remedy. In an address before this Association several years ago, Governor Porter sounded the key-note of success when he wisely said: "You farmers can create a market for mutton by producing a superior article for consumption." In our calling, as in all others where competition is sharp on an ordinary level, there is always room at the

top. Right here I think is where the mistake has been made in selecting the breed of sheep for the foundation of our flocks. Whatever may be the good qualities of the Merino sheep, and they are many, they have failed to meet the demands of our markets both for wool and mutton. This statement is made with due deference to the opinions of those in favor of this old established breed. I have no iron-clad opinions of my own in respect to breeds—I want the best. A mistake, although hoary with age, will never remedy an evil if still persisted in. My own experience has been to cross a pure-bred Cotswold ram upon a class of high-grade ewes. With this cross I succeeded fairly well, both as to weight of fleece and size of carcass. The last clip sheared from a flock of 50 sheep weighed on an average of $8\frac{1}{2}$ pounds, and a weight of 150 to 175 pounds of carcass when fat. This was several years ago, and had it not been for the devastation wrought by midnight prowling curs, that caused me to sell my flock, I have no doubt but at the present time I would have had an average clip of ten pounds to the fleece. But the Cotswold has its faults. The fleece fails to meet the demands for a first-class medium combing wool that always brings the highest price in our market.

Passing by other breeds of great merit, I think the Shropshire is the coming sheep for the great Mississippi Valley. The products of this cross are large, symmetrical and hardy, and with the diffusion of Down blood that they possess, they make a first-class mutton sheep. Their fleece is of medium fineness and good length, and possesses that glossy appearance that makes it a first-class wool. It is by cross-breeding with such a class of sheep as this that the best results will be achieved and our highest hopes realized.

With such conditions fulfilled we may hope to rescue sheep-husbandry, one of the noblest callings that has ever fallen to the lot of man, from its humble estate, and place it on a higher plane where it justly belongs. With such a type of sheep, the great Mississippi Valley will yet teem with flocks of countless millions, rivaling the Castilian flocks of Andalusia, or the silken fibred fleeces of Saxony. And may I not hope that you, gentlemen, who have labored long and patiently in this noble calling, may live to see on every hill-top and in every valley of our great State flocks of this noble animal—the ideal of your highest hopes?

DISCUSSION.

Mr. Cowgill. I must congratulate my distinguished friend that he has, during the past two years, acquired a knowledge of sheep husbandry of this country. I am rejoiced, sir, to know that he has discovered that God Almighty did not decree that sheep could not be raised in this country as he said a few years ago. It is a good address and I can congratulate him on the improvement he has made.

Mr. Pendleton. I thank the gentleman, but he is mistaken. I never thanked God that he did not decree that sheep should be raised here.

Mr. Robe. The address is an excellent production. I understood him to say that he could raise sheep twenty per cent. cheaper than cattle, and fifty per cent. cheaper than hogs. I wish to ask the gentleman how you arrived at this by figuring twenty per cent. cheaper?

Mr. Pendleton. We know, in all animals where we fatten nearly altogether on grain, it is dear. With sheep it requires but little grain to fatten more rapidly than other animals. I can take a flock of sheep of the breeds I mentioned, and I can fatten twenty per cent. cheaper than I can beef, and fifty per cent. cheaper than hogs. It requires much corn to fatten steers.

Melvil Ensminger, Danville. The gentleman brought out the point of Shropshires as a model for wool and mutton. I wish to ask the question if that is the sense of this meeting, whether it is preferable to the Cotswold sheep?

J. L. Thompson. That part of the discussion will come up later on, as we have another paper on the Shropshire.

Hon. C. A. Howland. I will say for Mr. Pendleton's encouragement that he asked for protection and did not get it; I asked and got it. I asked to be enlightened on a mode of protecting my sheep, and I come to the conclusion, dog law or no dog law, I can raise sheep and I live within two miles of Indianapolis, where there are more dogs than anywhere else unless it is in New York City. I have kept sheep for the last forty years; with the exception of the last two years, I have lost no sheep, but eternal vigilance was the price of this immunity. I somewhat differ with the gentleman as to mutton being raised cheaper than pork or beef. You can raise sheep pretty cheaply, but whether you can raise it fifty per cent. cheaper than pork, I doubt very much, and would not recommend sheep raising to any one who do not look after their interest. I do not care whether others raise sheep or not; If I have a friend I would advise him to raise sheep, but it is immaterial to this Association whether he raises sheep; the less in it, the better it is for those who are in it. We don't want to say we can do it so cheap, for there is money in it as well as other things. There is money in cattle also. The sheep interest will be like the hog interest now, from three to twelve years it will go down. Hogs go up and down in three years and overdo the market quicker, but there is as much money in raising sheep as any thing else. If we have a good grade sheep it makes a good sheep, but I am in favor of mutton as well as wool sheep, and we should not rush the wool up to ten pounds regardless of mutton; we want a general purpose sheep. On the whole it is a good paper.

Mr. —. Do you use bells on your sheep?

Mr. Howland. I do not. I have a pen in which I put them in of nights.

Mr. Strange. Do you use "buttons" on dogs?

Mr. Howland. I use such on strange dogs when they come around.

Mr. Beeler. The paper is a very interesting one and shows extensive information on the subject and I fully agree with him in most parts of it, but I am sorry he has given way so easily from the depredation of dogs; I have been there several times myself and still keep sheep, but have had none killed for several years, and I live near the city where dogs are plenty. I always have my sheep close to home at night. The worst trouble I have is by hunters passing along the road and the dogs frequently get in and run my sheep, but I have had none killed in that way, yet it is a great aggravation to have them run. As to the matter of sheep raising, I think it is correct that in many parts the flocks have doubled in the past year; it will, however, bring its reaction in a few years; men will say that it does not pay. They buy now at the zenith of excitement and pay big prices and do not know

how to handle them and consequently will not succeed and soon conclude that sheep do not pay. I am forcibly reminded of a conversation with a gentleman last spring. We were talking about the depreciation in farming interest. In the course of our conversation I remarked that "sheep pay." He said: ' Well, I used to raise sheep and made more money on them than anything else, while I gave my attention to it myself, but if I give the matter over to others to look after, I could not make much.'

President Cotton. Referring to the city papers, a few years ago, they said Mr. Beeler had dog graves in almost every corner of the farm. [Laughter.]

Mr. Beeler. I never killed a dog unless it was in the act of killing a sheep.

Hon. Calvin Cowgill, Wabash. The subject referred to in Mr. Pendleton's address in regard to protection of sheep from dogs is one deserving of attention from this Association as much at this time as any other question coming before us and probably more so. While granting that it is important to have legislative enactment to give a remedy for all the evils we suffer, I do think, sir, our laws may be amended for the protection to that great husbandry. Now I grant that you can protect sheep tolerably well, if the plan depicted by Mr. Howland is pursued, but it is considerable trouble to do so, but my own experience and observation has long since taught me it is not the best thing for the sheep to confine them in a little den or enclosure. There are many reasons why sheep do not do so well as they will do if you allow them the range of the pasture in the night, when the weather is not inclement. When the weather is bad they should be sheltered. In the next place the manure would, I think, be a great source of profit to the farmer, for this manure is almost entirely lost when you pen the sheep of nights. I have, like Mr. Howland, a place of that kind for the protection of sheep. With one exception I have had no sheep killed until this fall. I had three or four hundred head and it was a good deal of trouble to put them up and I concluded I would take the risk of running in the pasture. The result was the dogs got in the first night among them and killed ten and wounded twenty-three other sheep, most of which might as well have been killed.

Mr. Howland. Were cattle among the sheep?

Mr. Cowgill. No, sir; it is not advisable for them to run with the sheep; they don't do so well. I do not live on the farm, but in the town, a mile away, but I instructed the man who had charge of the sheep to put them up at night, but in less than a week the dogs absolutely dug under a picket fence and killed five or six and wounded several more. I think the law should give more protection than it does, but perhaps this question will come up again and we should not consume too much time discussing it now, but I think that is one of the questions that should claim the attention of this Association at this time.

Uriah Privett, Greensburg. I have a shed in which my sheep can run, and have not had any sheep killed. When the dogs get after them the sheep run in the shed. The best way to do is to watch, and when you see dogs on your farm that have no business there, and unattended by the owner, get away with them and pay no attention to the law.

The following committee was appointed on programme: J. L. Thompson, Uriah Privett and C. A. Howland.

T. C. Phelps, of Greensborough, presented the following paper on

THE MERITS OF THE COTSWOLDS FOR WOOL AND MUTTON.

It affords me great pleasure to have the privilege of once more meeting with the wool growers and sheep breeders of this great State of Indiana. The subject assigned me by the committee is, "The Merits of the Cotswold for Wool and Mutton." I shall not call in question the merits of any other breed. The Cotswold is my preference among the many breeds that are now striving for public favor; while I shall contend that there is no one of them that is more profitable for the general farmer, I shall discuss it without any spirit of antagonism toward any other. I believe there is room for us all and that any of the breeds rightly managed would become profitable.

The Cotswolds are an old English breed. The first importation of any consequence was about 1842, although a few had occasionally been imported before. I may say that the Cotswolds were the leading breed for a number of years.

During these years of their great prosperity the demand for a certain kind of ladies' dress goods, and some other goods which were very fashionable, called for that class of wool which the Cotswold produced, and had the effect of raising its price far above any other. These were golden days for the Cotswold, and large profits were realized by importers and breeders of these sheep. After a few years the fashion changed and the demand for that class of wool went down and we had a general depression in the sheep trade. So a large portion of those breeding long-wool sheep sold off and quit, while others were led to try some of the new breeds which were introduced about that time. A good many were persuaded to try crossing their flocks with Down rams, as they were told they would make more salable sheep for mutton purposes. While the first cross was quite a success, it was found that subsequent crosses were not satisfactory, and instead of each cross making a better sheep it made a worse one, so now a great many of these men are coming back to the Cotswold. They say now they have never had any sheep so satisfactory for wool and mutton. Now, take the weight of carcass and of wool produced by the Cotswold and compare with those of any other breed, at the current prices paid in the markets. I will ask any honest and fair minded man if the showing is not so plainly in favor of the Cotswold that there is no room for doubt as to which is the most profitable. Some one, of course, will tell me that the Cotswold requires more feed and that it costs more to produce it, but it has not been proven by any statistics that I have seen, when fed together at same age and on same fare. But these are only assertions. I will quote, however, from the *London Live Stock Journal*, comparing weight and gain per day, of sheep shown at the Smithfield Club Show, England, last year, which is very conclusive on this point. The writer gives the increase per day of the breeds in competition in ounces computed from the official weights and ages, given in the catalogue of the show, comparing Cotswolds with middle wools. It stands thus:

<i>Breed.</i>	<i>Over 1 year.</i>	<i>Under 1 year.</i>
<i>Wethers.</i>	<i>Ounces.</i>	<i>Ounces.</i>
Cotswolds	8	11.2
Oxfords	6.7	10.
Shropshires	6.2	9.3
Southdowns	5.2	8.1

The author, a Cotswold breeder, further writes upon the two points, which in my opinion comes first in determining the relative merits of different breeds from a practical farmer's standpoint. I consider none of the breeds equal to the Cotswold. They are hardy of constitution, as evinced by a low death rate, when kept on their natural food without grain. Secondly, early maturity, as evinced by the possibility of fattening them more quickly than any other breed. He adds: Now I have proven on three successive occasions that Cotswold lambs can beat in weight, for age, the produce of all England, and I do not speak without experience, as I have managed flocks of Down sheep, Shropshires and Oxfords, and have in the last ten years tried both Southdowns and Hampshires as well. Now I fully agree with my brother on the other side of the water with a very little exception. I said before this association a year ago, that I believed that Down ewes were a little better nurses than the Cotswolds, and if raising lambs for the market at or before the weaning time was the object, the Downs might have the advantage, but from weaning time on the Cotswolds will go ahead. It has been said with some emphasis that the Cotswold wether would not bring as fancy a price in the market as the Down, because of the quality of his flesh. My observations in the market have been that the wether with large size and fine style is the one that brings the long price, regardless of the color of his face. And when it comes to large size and fine style, surely none can beat the Cotswold.

Now I have not said much about the fleece. The time was in years gone by that the fleece of the Cotswold was not what it should be, a little too harsh and running coarse on the thighs, but it has been greatly improved till now we have a uniform fleece all over the body of fine fiber. In regard to weight I will only give my own experience, and make no comparisons. I seldom ever shear less than an average of twelve pounds. Have had some shear as high as eighteen and twenty pounds; but there are exceptions. Now, I think the Cotswolds have great merit both for wool and mutton; and when I speak of their great merits I do not speak in reference to the great ranches of the West and Southwest, nor of the hills and mountains of Ohio, Pennsylvania and Vermont, where sheep are kept in very large flocks, but to Indiana farmers, where a system of mixed husbandry is followed and sheep are not likely to be kept in very large flocks. I like them because they require so little care or skill in their management; they are my choice because they give me more wool and more mutton than any other breed, hence more dollars and cents; and that is the end for which we are all working. I like them best because when I take my friends to look at them, or when I take them into the show-yard they always have a presentable appearance, requiring nothing but the wind and rain and sunshine of heaven to put their wool in show condition; and no professional tonsorial artist with comb and scissors is needed to keep them in a noble condition.

DISCUSSION.

The Chair. You have heard the paper, it is now open for discussion.

Mr. C. A. Howland. I say there is much merit in that paper and in the Cotswold sheep. I think so now more than ten years ago. I had them then, but got rid of them. Still changes are made, men notice other sheep that are in more demand. I am sometimes over-persuaded to let my flock of Southdowns go and return to the Cotswold. This year when I went to hunt some I found them scarce and hard to get. Some of my neighbors have had the same experience. I do think the Cotswold crossed is a splendid sheep, but like the Leicester it is owing to how many sheep you want to keep. If you only want a few, there is not anything nicer than the Cotswold, but a man can keep together satisfactorily more Shropshires than Cotswolds, and more Southdowns than Shropshires, and more Merinos than anything else. It is owing largely to the size of a flock the man wants to keep as to what breed he shall choose.

Mr. Thompson. How about trimming?

Mr. Howland. I do not have to trim up as you do yours.

Mr. Ensminger. I was amused at Brother Howland that he did not have to trim up Cotswold, but thought it a perfect sheep. If he had the experience I have had, and I have been in the sheep business for many years and have exhibited at the State Fair and all over Indiana and Illinois, and if a man don't put his sheep in good shape, he don't make anything. If you have a good bunch of Cotswolds and trim them up you make a good show and get some money, but when it comes to a general purpose sheep, we want the Shropshire, as it will sell to everybody. I would ask what you would do with the long wool of the Cotswold sheep in November and March, with the kind of weather we often have in this State, unless the owner has a barn to which they can have access. I have had all kinds of sheep and when I have long wool sheep, unless we attend to them promptly and have a shed for them, they start down and you might as well sell. When lambing-time comes around I find that the Cotswold lambs will get down and are of a feeble condition, while the Shropshire will get up and nurse when they first come and seem to do better.

Mr. Darnell. Do you know of any sheep the Cotswold will not improve?

Mr. Ensminger. They will not improve the Shropshire; they will make more wool, but of not so good quality.

J. B. Herkless, Knightstown. I have been a breeder of Cotswold sheep for 28 years, and have bred Shropshire and Cotswold together, and if there is any man who can beat me in Shropshire or Cotswold I would like to know it. I find that my Cotswold lambs I have raised have more wool on them, which serves to keep them warm, and they get right up when they come, while the Shropshires have no wool and come puny. I have held them up to suck for two days. They are a good sheep, but the Cotswold is better, and I will convince the man if he will come to my farm. I have no trouble in selling my Cotswolds, and I have had as high as 150 to 300 at once. I can keep as many Cotswold as you can Shropshire. I have paid well for my experience, having sent my son over to England to investigate the sheep of that country when we imported Cotswold and Shropshire, and

to-day we can get two dollars more on the Cotswold than you can on the Shropshire. I can shear 13½ pounds from the sheep off of my breeding flock, and have sheared as high as 22 pounds from a Cotswold and sold it at 25 cents per pound. When you breed back, the Cotswold is as hardy as any sheep, and I can show as heavy sheep to the age as any man. My experience is, men breeding to Shropshires don't want to cross more than once or twice, but come right back to the Cotswold, and I can cite you to men of the same experience.

Marion Williams, of Muncie, read the following address on

SHROPSHIRE THE BEST SHEEP FOR THE COMMON FARMER.

Shropshire sheep are so called after the name of the county from which they originated, and are a descendant from a hardy variety found in Shropshire and adjacent counties in England for the past two or three centuries. They were noted for their fine quality of wool and mutton. Formerly known as the morf-common or gray-faced sheep, a horned sheep with black face and legs. According to the best authorities these sheep have not been brought to their present state of perfected development by the crossing of the Southdown and other breeds, but by the judicious selection from that of its own species. The turning point for the Shropshire was in 1853, when they were first exhibited in the Royal Show Yard at Gloucester, England, where their general superiority was recognized, and from that time breeders were awakened to use careful judgment in their selection of breeding animals, which has placed them in the front rank. Since that time they have increased with an eye single to quality, and their reputation has attracted attention from all quarters of the globe.

The first importation into the United States was about 1855, into Virginia. Since that time they have increased to many thousands.

As seen in the best flocks of to-day they have symmetrical bodies on short legs, a genteel appearance, well-covered heads, and every part of the body well-covered with a uniform quality of wool of the most valuable kind.

They are not adapted to merely one particular locality, as some people advocate, but do equally well in most every part of Europe and America. They have the power to thrive where any other mutton breed can live. They are especially adapted where close confinement is not desirable nor practicable. The open air is their delight. They are not easily affected by the storm like some of the breeds we have had some experience with, and instead of standing with arched backs shivering from its effects, and fleece parting upon the back, exposing the most tender portion of the body, they are up and ready to hustle, always with a lively appearance.

They have great power of food assimilation, with a very strong constitution and mature early.

There are three grand principles the Shropshires possess that are unexcelled by any other breed. First, mutton which is unexcelled by any breed, carrying all the quality of the Southdown, with considerable more size; carrying a large proportion of lean meat to fat, are light in offal, will fatten at any age, with from fifty to seventy days' food, ready for market. Second, they produce an elegant

fleece of wool, not too fine nor too coarse, what is called medium delain, and bringing the highest price in the market. It is used for stocking-yarns, flannels and common cloth goods, which will never go out of fashion. Their wool is highly commended by manufacturers as being very strong and tough in fibre, and capable of being twisted tighter than most any other wool. A flock fairly well cared for will produce eight pounds per head. Our flock has made an average of a little above that for the past five years. Third, they are the most prolific of all breeds except the Dorsett; 150 per cent. is a common return and as high as 200 per cent. has been reached. In 1888 we had fifteen ewes we purchased of T. S. Minton that produced thirty-one living lambs. It is not a rare thing for triplets, and once in a while four; and not a rare thing to find one of three take a good position in the show ring. The ewes are capital nurses, and are well adapted to the lamb and dam trade; in fact, it seems to be one of their special qualifications, for not only do they feed their lambs well, but as a rule they are ready for the butcher when their lambs go. In a marked degree they combine all the characteristics which are essential in producing better returns in wool and mutton with a given amount of food and care, are more prolific, and as strong a constitution as any other sheep. Their ancestry has been noted for a wool-producing breed as far back as in the fourteenth century, showing that wool from Shropshire commanded the highest price of the lot. Some farmers prefer a big, coarse sheep, on long legs, but I am quite convinced of the fact that the rent-paying class is a moderate-sized sheep of good quality, for it is the sheep that takes the butcher's eye at present, and there will always be a market for good mutton. It is true everything sells by the pound, but please don't forget that quality always regulates the price; therefore, it is not the weight of fleece or carcass alone that decides the most profitable sheep. But the most profitable sheep for the common farmer is the sheep that brings the most money's worth of mutton and wool from a given amount of feed and care, with a strong constitution and easily fattened, and ready for market at any time with the quickest return. And we do say and affirm that that is the Shropshire sheep. I have received information from Mr. John Benstead, one of the live-stock commission merchants of Buffalo, which I think will be beneficial at this point. I am told Mr. Benstead sells about one-third of the sheep disposed of in that market, and that he and one of his partners have considerable land outside of the city, upon which they annually feed large numbers of sheep. Mr. Benstead writes as follows:

"In regard to what is the best all-round sheep for our farmers to keep is the Shropshire, and I will tell you my reasons for saying so. I am here on the largest sheep market in the world myself, and have sold over three hundred thousand each year for the last nine years, and in all that time I never had a lot that showed any of the Shrop. blood that it did not help the sale of them, as the butchers have such a good opinion of the Shrop. that whenever they see a load with a little Shrop. mixed amongst them they seem to want them, and then it helps the looks of them, as the dark faces make them look better and whenever they have any Shrop. in them it helps the shape of their bodies. Now the full blood or sheep that are well crossed up with Shrop. are the most perfect sheep that stands for all purposes. As in the first place he is an easy keeper and an easy fatter. You can put more pounds

on him in a shorter time with the same amount of feed than any other sheep I know of. Then when you come to sell him his skin is worth more to the butcher than any for the reason that the skin buyers will pay more for it, as it is just what he wants, as the wool is the right kind, neither too coarse nor too fine, but just right; and the kind that there is always a good demand for, and then the skin after the wool is off is a great deal better than any other, as they split the skin with machinery they have for that purpose and make the finest lady's shoes, and the skin off of the Shrop. just fills the bill, as they are smooth and even all through. Then when you come to the carcass that is where they take the cake, as they are nice shape and have more lean meat to the amount of fat than any sheep that stands up. The fat is well distributed all over the carcass, and not all in the kidneys and in chunks on the back, like the old-fashioned breeds of coarse wools, nor does it have that thick rine on the meat or the woolly taste like the fine wools, but when the butcher comes to cut up the carcass of a Shrop. or grade Shrop. he finds plenty of good, thick flesh, especially through the back and hind quarters, well mixed with a fine, nice grain of fat running through it, which gives it a nice taste and flavor which it would not have if the fine grain of fat was not mixed through the lean, as then it would eat dry and woody. Now a great many people remark that they wonder why it is there is getting to be such a demand for sheep and lambs to kill in the cities. Now my opinion is that it is because the meat tastes good to the people who eat it, and the reason it tastes good is because we are raising mutton sheep. In years past breeders all went in for wool, and when the butcher come to let his customer have the meat of such it did not taste good and so he did not call for mutton next time, but took beef or something else. But now he goes and gets a piece of mutton or lamb and it happens to be off of a Shrop. or grade Shrop., and it tastes so good he wants more, and that is what makes the demand. If our farmers will breed mutton sheep we can sell them for them for satisfactory prices, as there will always be a good demand for good sheep and lambs, and the Shrop. ram is where our farmers can get good lambs from."

Mr. David Wilson, of Carroll County, Ind., states: I have been using Shropshire rams upon my flock of Southdown ewes, and the second cross has increased the average weight of fleece two pounds per head, and twenty to thirty pounds in weight of carcass, and I have a flock of ewes hard to beat, and the Shropshire is the sheep. We have used Shropshire rams on Cotswold ewes and it is a good cross, giving them a better quality of wool and mutton with more lean meat to the amount of fat; and making them a stronger constitution and more able to stand the storm and less liable to disease, and more prolific.

They make a good cross upon the Merino ewes, increasing the carcass and length of stope and quality of mutton.

I have only to remind you of the fact in 1889, at the Great Fat Stock Show held at Chicago, that the best carcass of mutton shown was decided to be that produced from a Merino ewe crossed with a Shropshire ram.

At the Royal show in England for the last four years over one-half of the sheep catalogued were Shropshires, and there has been more Shropshires imported in the last four years than all others combined. And you will find warmer competition in the Shropshire ring than any other in America, and they stand to-day

with a register next to the Shorthorn register in America, and doing more business than any of the recognized sheep registers.

What I have given is surely sufficient to show how important a place the Shropshires hold to-day, and will take in the near future in the mutton and wool products of this great country. No doubt you will find among Shropshires good, better and best, as are in all other breeds.

If this country had three sheep to every one it now has we would hear less cry of hard times. And half the number of good ones that there are of poor ones would yield double the profit on one half the feed. The practical point to be considered here is, how shall we increase the value of our flocks of the different grades in this great country? We will answer, use the best Shropshire rams to be obtained.

We do not say that there are no other breeds of sheep, but we do say no breed of sheep, in so short a time, has been scattered over so wide an area in the civilized world as the Shropshire has. And we do say further that no breed to-day has secured so strong a foothold and has more admirers in every State and province in America, and we believe that no breed of sheep has done so much to increase the demand for choice mutton as has the Shropshire, and the demand has only commenced, for the American people are becoming a mutton-eating people, and they have realized that it is not quantity but quality that gives it the sweet, juicy flavor.

DISCUSSION.

C. A. Howland. I wish to say, in justice to the young man, that it is a good paper and treated the Shropshire well. It is a good sheep, but I take issue with him in some points; as far as mutton is concerned, they and the Cotswold are not mutton sheep, but the Southdown is. They are decidedly a mutton sheep. I do not know anything about the skin of the Shropshire being better than the Southdown. Perhaps the gentleman has points that I have not. I can not believe, however, that a lady's shoe is better made out of a Shropshire hide than a Southdown. I am breeding Southdowns now, and have bred Cotswold and Shropshire, all of which are good sheep.

Mr. Cunningham. There is one clause in the address I think should be changed, that is "common farmer." When they get on their good clothes they don't feel "common." We should get that out.

T. C. Phelps. The three kinds mentioned are all good sheep, but the Cotswold is my preference. I have been raising Cotswold for over twenty years and I think there is much nonsense in the papers and among the wool-growers about the Cotswold getting wet and freezing to the ground, and never drying out. They don't get wetter than the Shropshire and Southdown and dry out quicker. The wool hangs down long and runs the rain off.

Mr. Thompson. The gentleman is right, the wool is open and it dries out more readily.

Mr. Ensminger. The Cotswold, after a storm, looks like a load of hay as it stands with arched back and fluffy fleece, with the backbone exposed, and chills and shivers with cold, and if timothy seed should get on them here it would

grow; no other sheep have I had that grass would grow on the wool like these. I find I can not raise Cotswold successfully in the months of November and March on account of the inclemency of the weather. I have had experience with them and paid dearly for it. If I were in the business for money, I would not want any long-wool breed of sheep.

J. B. Harkless. My experience in handling sheep is, the Cotswold will stand as much cold as any other sheep. My sheep run out Saturday night last. In the morning we got up late and my wife said to me, "John, do you see that little lamb out there?" The little fellow was up, and I could not catch him. That don't look like they chill to death so easily. My experience is they do better in the open air than in the house. I have fed Cotswold lambs last winter in the field and did not lose any. I give them a little corn and let them run in the meadow all winter. Any sheep do not do well if exposed to too much rain and chill, but I do not advise close housing for either Shropshire or Cotswold. I leave my barn open so they can get in and out at pleasure. If I keep my ewes closely housed the tendency is to produce weakly lambs, and have not saved so large a per cent. as when they run out, and not so large and strong. I have talked to other men about it and they are of opinion that they need exercise. I do not want a sheep to be any more prolific than the Cotswold. I refer you to a case where nine ewes had twenty-nine lambs, and raised the principal part of them. One ewe had five lambs, but did not raise any of them: I don't want more than two, and would rather have one good strong one than two weak ones. As far as being motherly, she is more motherly and gentle than the Shropshire. I am well satisfied with the Cotswold and hope the gentleman is with the Shropshire.

Uriah Privett. I am glad we have one Southdown breeder besides myself. I bred Shropshires for ten or twelve years, and bred good ones, but my Southdown lambs get up and do better. I consider them a hardier breed of sheep than the Shropshire.

Sid. Conger, Flatrock. Every man tells us he has the best breed. I want to find out the best feed to feed with at this time of year while lambing. I think I know what is the best sheep, but don't know what to diet with.

Mr. Ensminger. Dry corn is the worst feed we can get.

Mr. Conger. If there is any man present who can tell what is the best I want to know.

I. N. Miller. I wish to ask those gentlemen who have been importing sheep to tell us how they raise sheep in England. I understand they raise them in the open air and they do well.

Mr. J. L. Thompson. I find sheep are handled in England in a more natural manner than we have here. So far as the principal part of the flock is concerned it is out of doors, with the exception of show sheep, and rams are fed for market in March and April, which have the benefit of shelter. About the first of March they are put in and fed, but before that they are wintered out in the fields on turnips.

I. N. Miller. What time do lambs drop?

Mr. Thompson. Some of the lambs were probably dropped in December, January and February; but Shropshire lambs, they tell us, are dropped in March. I

have been over the region where Cotswolds originated, and do not want to say anything against them. I was pleased with the essay. The Cotswold sheep are raised in rocky country, seven or eight hundred feet above sea level, where it is bleak and cold, and raised out of doors, and when put up to feed are put in hurdles. There you see many half-bloods of the black-faced rams; but I think I never saw a white-faced sheep in the region of the Shropshire, Southdown or Hampshiredowns.

Mr. Robe. When putting up lambs to feed, what do they feed on?

Mr. Thompson. Roots are the principal feed; they give some corn, oats, peas and beans; in fact, a little of everything. However, I think they don't feed timothy in the winter season, as they don't make timothy hay—it is rye grass, which is clover and red-top mixed. To get sheep to grow off to advantage, it is well to feed a little grain all the time.

Senator Mount. I am not a member of the Association, but I am a wool-grower. I have been interested in this discussion, and it has been suggested here, or rather, questions asked about sheep of the common farmer. I am not raising sheep to sell on the market for breeding purposes, but as a common farmer, keeping them in good condition for wool and mutton, and making no effort in any other direction than that, and no advocate of any particular breed. In Montgomery County the farmer gives close attention to his flock of sheep, no matter what breed he may have—protects against dogs—and he gets a profit by so doing. I don't care what breed of sheep, if he gives proper attention, he can make money. I am for preference, but do not want to say anything against other breeds, as every breed has its advocates. With my breeding sheep I am crossing Merino with Cotswold, with satisfactory results, both as to carcass and wool. From 162 head of sheep, mostly ewes, I had sheared on an average $8\frac{3}{4}$ pounds of wool, and sold my yearling wethers in the spring, between clipping and harvest, at a fair price, and weighed 125 pounds good weight; so I find crossing in this way gives satisfaction; but let us not war against each other for any special breed of sheep. I am an admirer of Cotswold, Shropshire and Southdown, but not so much as Merino, but when crossed with the Cotswold it makes a uniform and fair carcass for mutton and a good quality of wool. I raised last year 112 lambs. I went through in the fall and took out the culls and sold them at a fair price, which left me 200 sheep to winter over. But what we want in Indiana is to pay more attention to sheep. I have been amazed when going over the southern portion of the State, and see men plowing over the hills and have but few sheep. Instead of having a million sheep in Indiana, we ought to have three or four millions. We then would have rich soil; where the "golden-shod" sheep is, the land is richer. What we want is more sheep and better attention given in regard to feeding them. When in the stable I feed clover hay—which I think is the best forage we can give them—and let them run on blue-grass when it will do. I do not feed timothy at all. I have injured my sheep, I think, by close quarters. This is something we should guard against, as they require fresh air to make healthy flocks. I am wintering 95 lambs. The treatment I give them is shelter, corn mixed with clover hay, and they are doing well. My flock sheep run out on the blue-grass, and I throw fodder to them with corn in the ear. As lambing time approaches, I take them to the barn and give oats and clover hay, which is the best feed I ever found for sheep. What we need

is more sheep and fewer dogs; but it seems the poorer a man is, the more dogs he wants on the farm. I hope the wool-growers will take some action as to what they want in the shape of a law for the protection of their interests against dogs. I have not written out a bill myself, but before we present a bill we want the wool-growers to say what that law shall be, and when that comes before the Legislature it will have some force. I hope you will fall on some plan of protection from the dogs, that we need, and say that the wool-growers demand this in behalf of the great industries of the State of Indiana.

Mr. Cowgill. I thought I would not say anything on this subject, but I think any breed of sheep is better than no sheep at all. I have not any decided preference to any particular breed, but have a preference to a cross breed. My own opinion has been from long experience and observation that there is no sheep quite so good as one that had considerable Merino blood in it; they are hardier and carry more wool and do well in larger flocks. I believe a man who wants a hundred or more sheep the more necessary it is to have considerable Merino blood in them. At this time my flock of sheep are principally a cross between Merino and Shropshire. I know it is very difficult to keep a flock of sheep so that you can maintain that kind of cross, but I have succeeded pretty well in it; occasionally I have one that will run one way or the other more than the others, but generally speaking I succeeded in getting a pretty even cross. I commenced breeding Merino ewes with Shropshire rams and after I had bred that way I bred the cross and have now a flock of sheep about half and half Merino and Shropshire. I have something over 200 hundred head and they have sheared a little more than eight pounds to the sheep for several years. If you want to increase your flocks rapidly I am satisfied that the Shropshire will increase more rapidly than any other sheep I have had anything to do with; even when I breed my Merino ewes to full blood Shropshire bucks they will quite often have two lambs; but two lambs are not quite so good as one. I speak of this because it is my own long experience in regard to this matter, but I am not prepared to give a satisfactory result by breeding Merino and Cotswold and do not like them quite so well, but have excellent flocks of sheep from the Merino-Cotswold cross, giving carcass enough for mutton, but you get a better yield of wool in my judgment from the Shropshire than you do from the thoroughbred Cotswold. My experience with the Cotswold is, the first fleece you get from the lambs is the best, and more pounds of wool than afterwards. I have never been able to have any considerable number of Cotswold sheep that did not get unhealthy and become diseased. A great many years ago I bred Merino sheep; I do not mean those little wrinkled Spanish Merino, but real American Merino. This sort makes a good mutton sheep, a good shearer and is a hardy sheep. I believe I have raised sheep longer than any man present; in fact all my life; and I have given the Association the sum of my conclusions on the subject of breeds.

Mr. Jackson. I first started out with the Shropshire sheep, then Leicester and Cotswold and I believe the Shropshire will stand more hard weather than either of the others. Adjourned.

JANUARY 22, 1891, 9 A. M.

President Cotton called the meeting to order. A short time was consumed in the payment of annual dues.

Secretary Robe read the following letter from Mr. R. M. Bell, Decatur, Illinois, of the Department of Agriculture, sheep division:

"In *The Breeders' Gazette*, of January 29, 1890, I read with great interest digests of your Wool Growers' meeting at Indianapolis. I congratulate you upon so grand a meeting. The Ohio meeting the week before was a surprise; they seemed to me to be awakening out of a Rip-Van-Winkle sleep; but you Hoosiers I knew had been alive all the while; you are more than alive; you are kicking up like young colts. You are not only getting on the right track, but you are staying there confidently and can tell why. It is usual to say of my adopted State, 'Poor old Missouri;' but it can well be said of Ohio in its wool monomania. Will you do me the honor of sending me a copy of the report in full of your meeting? It is so good that I want to read every word that was said by your people. Can anybody question the future of American sheep husbandry on our farms now?"

The Secretary announced that he had complied with Mr. Bell's request and forwarded the report of the last meeting.

The Committee on President's Address reported the following resolutions on the death of Dr. Ryland T. Brown:

"WHEREAS, It has pleased God to remove from our midst one of our old and highly esteemed members, Dr. Ryland T. Brown, of this city, who, while at the time of his death, was not actively engaged in raising sheep, always visited our meetings and took a deep interest in our proceedings. He was raised on the farm, and early in life learned to love the sheep, which continued with him through life. He investigated every subject scientifically and was able at any time to enlighten the Association to its great pleasure and profit on any phase of the sheep industry; therefore,

Resolved, That in the death of Dr. R. T. Brown we have lost a valuable friend to this Association and whose visits will be long remembered by its members."

Pending their adoption, the following remarks were made:

President Cotton said: Mr. President and gentlemen of the Indiana Wool Growers' Association: I do not want to make any extensive remarks concerning the life of Dr. Brown, but I feel it my duty to express a few thoughts of the high esteem in which I held the man. A more pleasant and agreeable man never come into my family. He was born in Kentucky, and when very young his parents moved to Ohio, where they remained for several years. While living in Ohio he was sent for a short time to a free school where he received some rudiments of education. In 1821 his father moved to Rush County, in this State, where he soon after began the study of medicine, at Rushville. After graduation at the Ohio Medical College, he located at Connersville in the practice of medicine, and remained there until 1843, when he removed to Crawfordsville and continued his profession several years. Returning to Indianapolis, he was afterwards elected

President of Butler University, and has lived here ever since. Was once State Geologist. Filled the office of Gas Inspector. He was appointed Chief Chemist of the United States and served one year, receiving a salary of \$2,500; and served in other positions of honor during his life. He was a man who was not afraid to act with his convictions, whether he stood alone or with the mass; he spoke free in every sense and in a manner that would not wound the feelings of others. He took to preaching the Gospel in the Christian Church, and preached in our neighborhood for three years. He was equally the young man's friend as well as the old man's. If a young man sought information from him he got it, and would explain to the student, on the street as well as any where else. He had a strong principle to give of what he thought was right. These are a few of the characteristics of the man. The rest of you know his work around these agricultural meetings; he was always ready to help carry on the work. When a boy he was the shepherd of the farm, and got a taste for sheep. He was a weakly boy and they thought he would not live long enough to attain the majority of manhood, but he was permitted to live to a ripe old age, and one whose life throughout has been one of usefulness.

Sylvester Johnson. It is my duty as a citizen and one who has known him for thirty years, to say a few words in his behalf. I think I have received more practical information from Dr. Brown than any other man living or who has lived. The honor that made his character shine above reproach, in my estimation, was his steadfastness in principle of the conviction of what he believed to be right. In the illustration of that point, I wish to mention a circumstance which occurred in the last few years. He went with some others on a trip to Montana. At the falls of the Missouri we went to the falls proper; in visiting them we had to descend two hundred and forty-five steps. We insisted that he could not go down, then eighty-two years old; but he wanted to go down and make himself acquainted with the rocks, having a hammer in his hand at the same time, with which to aid him in his examinations. When ready to return it was difficult for him to get up. I suggested, in a jocular way, that I hoped some of the younger of the party would assist him. One went on each side, but even then it was too much with that assistance; he got half-way up, where he found a resting-place, and he fainted away. We all thought that was the last of Dr. Brown. We got him in a carriage, and Mr. Judd, of the *American Agriculturist*, went with the Doctor, and during their ride he said: "If I die, I die a sober man." How tenacious he was of principle! Then says Mr. Judd: "Will you not take a little medicine? It will not intoxicate." He said: "I practiced medicine for forty-five years, and medicine was always to give, and not to take."

Charles A. Howland. There is not a person who knew Dr. Brown that had a more favorable opinion of him than I had; that is, what I knew of him was altogether to his praise. He was one of the good men of the day—doing good to his enemies and nothing low, or that would demoralize, but everything that any of us ever learned from our dear departed friend, Dr. Brown, was that which will do him good so long as he lived.

A. V. Pendleton. I wish to add a word or two in regard to the memory of Dr. Brown. I never knew him here very intimately. As a preacher in my community,

in that respect I knew him more intimately, but at the same time I have intimately known him from his writings for many years as a man of more than ordinary thought and intelligence. During his life he went about doing good to the greatest number coming under his care, and died a pure man.

President Cotton. While, as has been asserted, he was full of information and one of few men who failed to answer any question that might be propounded, but was not a man who was afraid to say "no" if he did not understand it; he was as simple as a child.

Prof. W. A. Bell. I did not hear what has been said concerning Dr. Brown, having just come in. I was well acquainted with him for many years and held him in high esteem. He was a man of interest in a great many departments of life. He took a great pride in advancing science, throwing out new thoughts on new subjects, and then investigating and looking into every corner and showing out some special features in regard to these things that other people failed to observe. He was a close observer and picked up many minutia in the various departments of life. A man of great value in organization, and one of whom the people held in high esteem, and his loss will be keenly felt.

W. S. Goodwin, Breeders' Gazette, Chicago. So far as I know he was a man of greatness, and his information referred to here was one of the most remarkable features, and so distinct of expression, I knew that better than anything. He was a man who could grasp his subject and present it in such a way that every one could comprehend it, and every thought was moulded before uttered. In that respect he was one of the most remarkable men I ever listened to.

Senator Mount. The memory of Dr. Brown is a good heritage, not only to this State, but Nation. He was certainly the friend of humanity. It has been said that hoary hairs is a crown of righteousness when the steps are found in the ways of righteousness, and this surely can be said of Dr. Brown. I appreciate his greatness as a benefactor, and his contributions to science will be valued in years to come. He was a friend to humanity, and his voice was ever raised in behalf of suffering humanity, so it is appropriate for this body and the people of this State to give some expression of their high appreciation of such a life and character.

At the close of the above remarks the resolutions were unanimously adopted.

The Committee on President's Address further reported resolutions indorsing its positions and recommending the references to needed laws to the Committee on Legislation. The report was adopted.

Mr. Nelson. I wish to offer the following:

Resolved, That it is the sense of this meeting that the State Board of Agriculture should so re-district the State at next meeting so as to constitute Marion County a district of its own.

And move its adoption.

DISCUSSION.

Mr. Strange. I believe that resolution should be amended so as to re-district the State on the basis of the census of 1890, giving equal representation as far as possible, and giving Marion County representation.

Mr. Nelson. This making an exception of Marion County, after we take into account the population of fifteen districts, and distributing it as near as possible, which would naturally follow with what Mr. Strange has suggested.

Mr. Pendleton. I do not see why there should be exception in Marion County from other parts of the State as to the census of 1890.

Mr. Nelson. I move to lay the matter on the table. Carried.

Mr. Strange, from the Legislative Committee, submitted a report recommending a bill providing for a registered dog law.

Mr. Beeler. If I understand this bill, any dog on which has been paid this license fund is protected. If a dog comes and breaks in with my sheep am I to be fined if I kill that dog, or do I have to go to the Trustee and find out whether he has been registered or not? It strikes me he would be fined if he did not go to the Trustee and find out. Before I could do that he might have all of them killed, there is so much machinery about it. We sometimes would have to go ten miles before we could get his register or license. The Township Trustee don't always remain at home, and it might be difficult to find him. I am afraid of this dog registry business; there are so many laws declared unconstitutional and not laws at all.

Mr. Strange. The features of the bill provide for that; if a dog is seen roaming at large without his master, he may be killed; it is unlawful.

President Cotton. I have made this question a study for ten years. In 1881 we had the tag registry, and most of the sheep men say it was the best law we ever had. There were, however, objectionable features in it. A dog without a tag was liable to be killed; sometimes the dog would lose his collar and the dog be killed, which gave more or less trouble, and was finally declared unconstitutional.

Mr. Pendleton. We are not going to get this through the House. I therefore move that this be referred to the Legislative Committee for consideration.

Mr. Mitchell. I am willing to trust that Legislative Committee to embody something to go as an indorsement of this Association.

Mr. Strange. I move that this be placed in the hands of Senator Mount, to place in the hands of the Agricultural Committee of the House.

Mr. Mitchell. Senator Mount would say to get the indorsement of the wool-growers.

Mr. Thompson. Let us refer that motion by indorsing all this by this convention. Carried.

Mr. J. L. Thompson, from the Committee on Programme, submitted the following report, which was adopted:

PROGRAMME, 1892.

1. President's Address.
2. Sheep as a Factor in Supplying the Wants of Man. Prof. W. A. Bell, Indianapolis.
3. Difficulties to Be Overcome by Beginners. W. W. White, Franklin.
4. Care and Management of Sheep as Regards Better Profits from Sheep Husbandry. B. F. Ginz, Star, Rush County.

5. How Dispose of Flock Products to Best Advantage? C. E. Carroll, Hartford City.

6. Have We Now in Indiana the Number of Sheep Which Our Improved Lands Will Warrant Us in Keeping Profitably, Not Diminishing Our Herds of Other Stock? J. N. McCampbell, Marshall.

7. Indiana's Exhibit of Sheep at the World's Fair, 1893. John L. Thompson, Marion.

8. Feed, Care and Management of Breeding Ewes During Winter and Lambing Time. H. N. Ensminger, Danville.

J. L. THOMPSON,
URIAH PRIVETT,
C. A. HOWLAND.

Secretary Robe. I will state that we have a couple of papers on the programme yet which we would like to hear.

Mr. Pendleton. I move that a committee be appointed to act in connection with the State Board of Agriculture in regard to premiums of the State Fair.

The motion prevailed, and A. V. Pendleton, I. J. Williams and J. L. Thompson were appointed such committee.

Secretary Robe. I think we should have Mr. Miller's paper next.

Mr. I. N. Miller, of Upland, Grant County, read the following paper on

HOW CAN WE PRODUCE A SHEEP THAT WILL YIELD THE HEAVIEST FLEECE AND THE LARGEST MUTTON CARCASS COMBINED, AND WHAT ARE THE COMPARATIVE VALUES OF CROSSING THE DIFFERENT BREEDS WITH EACH OTHER?

The committee composing this subject, it would seem, had some fear of getting beyond the bounds of brevity, and concluded to be content with bulk and quantity, as they appear to have lost sight of at least two important points in the scope of their intricate questions, viz.: Quality and duration.

First—How to produce the best quality of wool, as well as the heaviest fleece. Secondly—How to maintain the highest average yield of wool and the longevity of the sheep, producing a carcass of excellent mutton and reasonable weight.

The sheep combining the points named will necessarily have to be an animal that possesses great constitutional vigor, uniform size, and density of wool with fibres of greatest length possible to obtain in a medium or fine fleece; therefore, in crossing two or more of the different breeds are these results to be reached. Merino rams, coupled with coarse or long-wooled ewes, will produce a half-blood, possessing in greater part the features of the Merino in the quality and quantity of wool, with a sheep of medium weight, hardy and less liable to become affected by diseases from the inclement weather of our section of country. This produce, coupled with a superior ram of the long wools, will produce a sheep yielding the heaviest fleece and the largest mutton carcass combined for any age, and all ages, that it is possible to raise successfully.

Breeding alone will not triumph even if the imparting influences of sire and dam is so readily recognized in the offspring, as feeding and care are the prime factors in producing the best. Sheep are industrious feeders, and have need of being almost constantly supplied with plenty of the wherewith to meet their wants. Especially is this a matter of the greatest importance with ewes in lamb, or lambs at foot. The lamb is but a counterpart of its maternal ancestor in this respect and its welfare depends upon a never-ending food supply. Lambs are very cunning and imitative, early learning to partake of the choicest bits of food with evident satisfaction and they should be provided with everything that would add to their benefit. It is not uncommon for lambs to acquire an appetite for salt at ten days or two weeks of age, and frequently visit the "salt licks" for that purpose. On a luxurious growth of blue grass, timothy and clover (white clover) abounds as complete a ration for ewes and lambs as can be had for steady gains, and will produce the best wool and mutton, and the most of it, according to the variety or different breeds of sheep supplied with that kind of grazing; provided that at no time the pasture becomes overstocked or polluted from such causes. In that case a stunting effect will be observed, and if not promptly remedied by changing them to fresh quarters serious losses will be the result. The best plan to avoid anything of that feature is to divide the pastures and change them from one to the other once or twice each month, as in that way the grass will become purified; places of retreat to avoid the sun or flies will not get so foul and the growth more continuous in the sheep. For winter feeding a reserved pasture that has been allowed to grow unmolested during the fall will aid materially in keeping a bunch of sheep in high condition, when supplemented with bright hay or corn fodder and a pint of crushed oats and corn for each sheep twice a day if the weather is severe, otherwise one feed of grain given in the morning may be perfectly satisfactory. Every shepherd will have to exercise his own judgment in every case, as it is a matter of importance to maintain the health and thrift of an animal to be rewarded with success. Corn is strengthening, oats nutritive; combined, produce flesh, fat and wool. The large varieties of clover when cut and properly cured, if well headed and bearing plenty of seed, is a valuable food ration within its self and can be relied on as giving good results with little or no grain for the ordinary flock. The breeding, feeding and care of sheep has developed some grand specimens with the prominent breeds, but in the trite yet truthful saying, "like begets like," can that inherent law of nature be carried so far as to augment the chief characteristics of that type of animal, to a depreciation of other points, nearly or quite as valuable.

In the straight bred mutton sheep can be observed the "long wools," that tendency to coarseness of bone, flesh and wool, with such a thinning of the fibre as to render the sheep extremely susceptible to the inclement changes of the seasons, and diseases that ultimately prove fatal. On the short wools of the "downs" similar results prevail, being predisposed to flesh and fat, and consequent light fleeces, somewhat harsh and almost devoid of oil secretions, so essential in protecting the body from chilling blasts of wind and dampness, followed by acute attacks of plethoric fevers, or consumption of the lungs. Some varieties of the "fine wools" have not escaped the multiplicity of inherent forces peculiar of their type at the hands of ardent admirers of the breed in the last half century in America.

as wrinkles, suent or yolk, exceed the proper ratio with the increase gained for wool and carcass. However, some of the errors are being righted by the friends of that type of rent raisers.

Merinos have never been classed as a mutton sheep, either for quality or quantity, yet they have kept pace with advance made with other breeds, especially of what has been termed the American Merino, and will be credited as being at least fair to good, and while they require more age to reach maturity, they have the advantage of affording profits to greater age than most any other type of sheep. Their greatest value is in producing a compact fleece of fine wool, fibres closely set in the skin, said to contain upward of 40,000 fibres to the square inch, while the coarser breed yield but from five to eight thousand. A good Merino will produce fine, soft wool from the tip of the nose down to the feet, often reproducing in the offspring by cross breeding with long or coarse wooled breeds this particular feature to a remarkable degree. The Merino has been to the world what the Shorthorn cattle has been to America; being of the oldest breed it heads the list for diffusion of the blood, and the most widely distributed of any over the globe. Doubtless at no very distant day in the epoch of past history for sheep husbandry, the superior qualities of some of the present breeds emanated from crossing with some variety of the Merino.

From the supplement of Consular's Report, Cattle and Dairy Farming, published by State Department, Washington, 1888, append some extracts from reports of the prominent breeds of sheep bred and raised in Britain:

THE COTSWOLD

Is one of the oldest breeds in England, its origin being lost in obscurity. Anyway they were celebrated for their long wool three centuries ago. In the beginning of this century Leicester rams were used to correct the coarseness the breed had attained.

For early maturity, endurance of cold and wet, the Cotswold is far superior to Lincolns or Leicesters, and for crossing with other breeds deficient in early maturity, the most valuable in the world. All the finest cross-bred sheep in England, notably the Oxfords, have been produced from Hampshire ewes by a Cotswold ram, and the cross of the Merino and Cotswold are heavier at a year old than pure bred Merinos at two years old.

Cotswold endure a great deal of cold without noticeable injury, are never sheltered in winter, and the lambs, when quite young, always are allowed to run in the field with their mothers, being healthier for it than when cuddled in sheds. Their principal food from May till November being grass and clover, with turnips in winter. Mr. Law's experiments showed greater and quicker returns for their food than any other breed tried with them.

Cotswold bears cold successfully in the English climate all the year round.

LEICESTERS.

This breed is described as follows: Head and ears covered with short white hair, some rather bald on the forehead, but generally caused by being housed. This breed has been classed as foremost among the long-wool varieties, and have been the means of transforming nearly all of them into more symmetrical proportions by cross breeding. Pure bred Leicesters are limited from this cause. They do not get so weighty as sheep of the Cotswold or Lincolns, owing to their smaller bone. Neither are they as heavy shearers. However, it is claimed they yield a better wool for luster yarn than any of the long or coarse-wool breeds. Not at all improbable that they got a dash of Merino 'way back. .

THE LINCOLNS,

Like the Leicester breed, has been transformed very much of late years by the modern art of breeders. The old Lincolnshire was a gaunt, big-boned animal, capable of feeding to an enormous weight, but taking a long time to accomplish it. The infusion of Leicester blood has given to the Lincoln of the present day much of its value as a wool-bearer and finer quality of mutton.

DORSET HORNS

Are peculiarly adapted to hilly lands and pastures of moderate elevation. The ewes are said to be very prolific, yielding twins and triplets at birth, and with good feeding produce two crops a year.

THE OXFORD BREED

Are considered as standing next between the short-wooled and the long-wooled varieties. Originally a hybrid, derived from Cotswolds and Hampshires, but by careful selection brought to a uniform type.

This breed possesses a combination of quality and quantity in the mutton carcass, and is receiving great favor at present.

HAMPSHIRE DOWNS

Are comparatively a new variety, said to have been produced by Southdown crosses on the old Wiltshire sheep. They have superior qualities of fecundity and early maturity; are massive, even, deep and close-wooled. Early lambing and good feeding for this breed produces good results.

SHROPSHIRE

Claim to have originated with two very old breeds—the Longmynd and the Cannock Chase variety, with a top cross of Southdown on the amalgamated race.

No native breed has extended so rapidly of late years, and that the breed is decidedly popular can not be denied, which speaks well for them. Although of

less weight than the Hampshire, and not quite so remarkable for early maturity, the quality of the mutton is superior and only excelled by the Southdown.

It is claimed by the admirers of this breed that they are more prolific than the Southdown, often one-half producing doubles with good care and liberal treatment. The top figures are paid for good Shropshires in the sale ring.

SOUTH DOWN SHEEP

Leads the Shropshire or the Hampshire for the purity of blood. Probably there is no other breed of sheep that can equal them in this respect. But little known until the latter part the last century, though they were kept in limited numbers in a small district about two hundred years ago. They were early noted for their fine quality of mutton, and been regarded as holding that superiority over all since, and are the admiration of show yards.

There are several other breeds met with in various districts throughout Britain, as well as in this country, emanating from cross-bred varieties of the different breeds that have given them a commendable place in the list of breeds, such as the Cheviots, Roscommon, and the Devon Long-wool, for England and Ireland. For the United States, the American Merino is a favorite for some localities, being hardy, fair size and yielding heavy fleeces of the finest wool.

The Merino, or a mixed variety of Merino and Cotswold, has given as good results with the average farmer as any type of sheep produced for wool and mutton, with the ordinary care given to sheep-raising after the usual method. Fifty to one hundred head do well together. Are more healthy and capable of withstanding the extremes of climatic influences successfully than either pure bred.

The breeding and care of sheep is no exception to that of any other industry. It requires some taste for the business, unceasing attention, and, above all, some definite idea of what kind or breed of sheep is the best for the purpose expected from them, and try to follow that plan or course as closely as possible. It is quite often the case some do not know what they want, and are not satisfied with any kind, which very often ends in failure.

To the English flockmasters can be attributed much for their success in producing the finest specimens of any of the particular breeds, because of their making choice of some special breed, with an idea as to what suits them best, and follow that with all the efforts due as such from generous feeding and careful management. What that has accomplished with the English farmer can be as readily done in America.

DISCUSSION.

Mr. Nelson. The paper just read is an excellent one, but there is one point rather mixed in regard to the breed of Shropshire. A few years ago I heard another definition of the origin of the Shropshire, and I want to know if the Shropshire keeps changing. We do not quite understand what crosses to breed in or use, that adopts the cross of the Southdown. This was not the way the Shropshire originated a few years ago.

Mr. Thompson. I would like somebody beside me to answer that question. I have been trying for a long time to answer it.

Prof. Bell. I think I would know now what variety of sheep to get after hearing these questions discussed. There was another gentleman who promised us at a future time to give us some information in regard to the best grade of sheep. If that gentleman is here I would like to have that question discussed and accommodate some of us in that respect.

Mr. Nelson. The Professor will excuse me for not making a discussion to know whether this new version is correct as to the composition of Shropshire generally obtained.

Sid. Conger. I am interested in the question of feeding sheep. A great many men know how to feed, and some of us would like to have the benefit of their experience.

Mr. Robe. I suggest Mr. Thompson give us a talk on that subject, as I think he has had considerable experience.

Mr. J. L. Thompson. As Mr. Conger has asked for information in regard to feeding sheep I will say in my opinion they should be treated in the most natural and common sense way; we do not want the show sheep with the rest, as they require a little more attention—the stable door open at all times, so they can go in and out at will and have the run of the field or lot. In answer to the gentleman's question yesterday as to what was the best to give, I would first recommend outdoor exercise, which is most important. My friend, Mr. Herkless, changed his opinion in a few years' trial on this point and I changed too. A few years ago Mr. Herkless found them handling sheep in a small way; he could house them closely and have good results, but not with large numbers. Our stable door has not been closed this or last winter up to the time of lambing; often in fixing for show purposes we don't close the doors unless during hard rains. We don't feed high, give a little corn and considerable bran, which is the first thing, and as I said yesterday, fresh air, plenty of blue grass pasture and clover hay. I do not think well of oats; we are too far south for them and I would not buy any under any circumstances to feed to sheep, especially at present prices, although I raise some myself and sometimes feed to my sheep. Bran is expensive but there is an element in bran you can't get in anything else. We are now feeding shock fodder out of doors, corn and all, and they get the benefit of the exercise and I get the benefit of the manure. It saves the expense and trouble of husking and the grain is saved much better.

Prof. Bell. Do you throw the corn on the ground?

Mr. Thompson. Yes, sir; it would not do to feed lambs in this way.

Mr. Privett. What would you do with an old sheep that has no teeth?

Mr. Thompson. We don't keep them that long, but sell and let the "other fellow" have them.

Prof. Bell. Plenty of good clover hay with ordinary woods pasture will carry a flock of sheep through.

Mr. Thompson. Sheep do not need much grain when running on woods pasture and plenty of clover hay and good water.

Prof. Bell. How about feeding rye?

Mr. Thompson. That is important; we feed much rye ground and in grain. It is the best thing in reach of the Indiana farmer to make the ewes and lambs do well before the coming of grass. There are people who feed roots, but that is not within the reach of the "average farmer." I object to the word "common" and say "average" farmer.

Sid. Conger. What kind of roots are best to feed?

Mr. Thompson. I do not know; Mr. Williams has the best experience of anybody I know.

Question. Do you feed cheat?

Mr. Thompson. I have not; I do not grow it. There is a most successful dealer and feeder of sheep in my section who feeds largely on wheat screenings from what we might call a self-feeder, built somewhat on this plan. He takes a sugar hogshead and sets it on a platform some twelve inches high, knocking out both the heads, raising this hogshead about four inches above the platform and fills the hogshead with screenings; as the sheep keep eating from off the platform at the lower end of the hogshead the screenings keep falling down until all is eaten up, when it is filled again. With this method of feeding, with plenty of water and clover hay, he has the fattest lambs for the Christmas market.

Prof. Bell. What about turnips?

Mr. Thompson. Mr. Williams will tell you about turnips.

Mr. Williams. I turned that over to my son, and he can tell you better about that than I can.

Marion Williams. We had about four hundred bushels of turnips, and we are feeding them to lambs, which seem to do well on them; but I do not feed them to breeding ewes, as they seem to have a weakening tendency. We have also many beets, which I consider excellent for lambs. The Sugar Beet and Golden Tankard Mangel are the best; the Sugar Beet is hard to pull, as it grows deep in the ground, and sometimes you have it to dig; the Mangel sets on the top of the ground, and is easily pulled. Sheep are very fond of turnips, and I never saw many sheep but what would take hold of them, and they will eat more turnips than beets. We keep our turnips in a hole in the patch, where they are easy of access, while we have about a hundred bushels in the cellar.

Mr. Merrifield. I have heard that frozen beets were not best for sheep.

Mr. Williams. In England they let them out in the field to pick and eat turnips out of the frozen ground.

Mr. Mitchell. That is not the way of it there. Turnips are the main feed of sheep in the old country; large fields are grown there. The farmer goes through and takes out two rows and leaves two rows; then comes the sheep man; he has a large net or tent, which is stretched around some five or six acres, in which the sheep are kept, and when they have eaten the turnips in this enclosure he moves it to another place until the entire field is fed out. It is this way on all the farms, the sheep eating off the field. This, however, must be done in frozen weather. There are very few beets grown in the old country, and are claimed not to be so good as here, but turnips are fed very extensively there, and are a kind of yellow variety.

Mr. Howland. Do they use rutabagas?

Mr. Mitchell. No, I think not. The idea of taking out those two rows is for home consumption, leaving the balance for the sheep, and by so doing it leaves the field in fine condition.

Mr. Cotton. Here if they freeze it destroys them.

Mr. Mitchell. That is a colder country than this, and they live right along. The ground freezes so hard that you have sometimes to dig them out for the sheep. It don't seem to hurt them to thaw out.

Mr. Thompson. It is my opinion, with what experience I have had in this matter, that it won't do to depend on root crops as a general feed in Indiana, but we will have to adopt some other simple way of feeding our sheep. Our climate is not suited, as to temperature, to depend on root crops. If it were the principal crop in Indiana, and it were to fail, you could not get along at all, so we have blue-grass and clover as cheap foods for our sheep. Notwithstanding the fact that roots can not be profitably grown here, I do not see why we can not raise sheep in competition with other countries, combining wool with mutton.

Mr. Mitchell. I believe Mr. Skinner is present, who, I understand, has had some experience in feeding ensilage. The Association, no doubt, would be glad to hear from him on that point.

Mr. Skinner, Denver. We have been feeding ensilage for three years and think it the best feed we ever tried. We can raise so much on a little ground and it is easily stored and can be kept in a green and nice condition. There is nothing better for sheep than well preserved ensilage and bran, especially with breeding ewes.

Mr. Strange. Can you get them to eat up the coarser part?

Mr. Skinner. We tried fodder, but we could not get them to eat it up clean. This year we used common corn filled with ears about the same condition as when put in the shock. In that condition it does not sour and stock like it better and will eat it up clean. I have been well pleased with the result of feeding ensilage.

Mr. Nelson. Do you ever use sorghum?

Mr. Skinner. No, sir; I use common corn. At the Experiment Station they feed clover hay.

Mr. Nelson. What is your opinion of sorghum for silage?

Mr. Skinner. I don't know. I never tried it.

Mr. Robe. Perhaps not more than corn.

Mr. Skinner. I think this would not furnish the nutriment to breeding stock that corn does.

Mr. —. What is your mode of preparing silos—upon the ground, or below?

Mr. Skinner. Above ground, and have them lathed and plastered.

I. N. Miller. Mr. Thompson says he would not feed oats to sheep.

Mr. Thompson. I did not say that I would not feed my oats. I do feed oats, but at present prices we can not afford to buy them.

Mr. Miller. Shelled oats and grass are better than anything else. I have wintered stock sheep on corn by throwing it on the ground, but I do not think the common breeder could do that with show sheep. There is getting to be an interest manifested in the sheep industry, and I apprehend some will get "left" who engage in it. I know of men who want to engage in the business, and have not

over five acres of sod land. A man can not keep sheep successfully unless he has grazing land for them, and men are buying sheep, expecting to grow pasture after they get the sheep, which, sooner or later, they will find to be a mistake. I wintered a hundred ewes last year, and they did not eat a ton of hay. We feed them oats in troughs where they can not waste it, and feed little or no corn. We are now wintering fifty head, and up to date they have not eaten a grain of corn, and since New Year's we have turned them on grass. A man who is not prepared to keep sheep will make a failure. He must have grazing land suitable to carry it on, and not buy sheep in the hope of getting the grass afterwards. Feeding sheep for market is similar to that of feeding hogs—when you corn them, say ten weeks, you had better let them go. You can feed a certain time with profit, but if you go beyond that you will lose.

Mr. Merrifield. I have found that the stable door has done much injury in the way of sheep crowding through. Ewes heavy with lamb are often injured in this way. I have obviated that difficulty by building a long shed open on one side, and now there is no danger of a ewe with lamb hurting herself in crowding in and out.

Mr. Robe. I seldom stable my sheep. Last year they run out all season and were on blue-grass pasture, where the cattle had eaten it over several times, and they done well on this pasture. I think I made a hundred per cent. off my flock last year. I do not think it advisable to feed much corn. I think the most complete ration is blue-grass pasture. When they can get plenty of grass they do not require much attention, but when the snow is hard, they perhaps need some rough feed.

Mr. Phelps. I have been a breeder of Cotswolds for twenty years. I consider there is no better feed for sheep than clover hay. As to grain, I have fed corn, bran and a little shelled oats sometimes, changing from one to the other; but my main feed is clover hay and corn.

Marion Williams. We have had no difficulty with ewes running through doors and injuring themselves. We let them go in at leisure and never drive or crowd them, keeping hay in the rack, where they can have access to it at all times. Through the winter we give plenty of clover hay and a little corn once a day up to lambing, when we change the feed a little and give a mixed feed of oats, bran and oil-meal, which we consider good. We use common salt rock salt is too high; we can not get it for less than \$11 per ton.

Mr. Miller. Is rock salt as good as barrel salt?

Mr. Williams. We fed rock salt one winter and lost several sheep. I do not know whether that was the cause or not.

Mr. ———. You feed several mangels, do you not?

Mr. Williams. Yes, we feed roots or mangels. They are good to produce milk for the lambs. We have been feeding these for four or five years. With fifty ewes we had sixty-five lambs.

Mr. Beeler. After lambs are dropped, I like to use small feeds of turnips, while I think there is a great deal more lost for the lack of corn than in using it.

Mr. Mitchell. This discussion is quite interesting, but I am admonished that time is passing and I now move that we proceed to the election of officers. Carried.

OFFICERS FOR 1891.

President—C. A. Howland, Indianapolis.

Vice-President—J. R. Tomlinson, Fairland.

Secretary—J. W. Robe, Greencastle.

Treasurer—J. L. Thompson, Arcana.

Executive Committee—Robert Mitchell, Princeton; Fielding Beeler, Indianapolis; Cal. Darnell, Indianapolis.

On motion of J. L. Thompson the Chair appointed J. L. Thompson, Uriah Privett and J. R. Tomlinson a committee to select expert judges to judge of sheep at the State Fair.

Mr. Thompson. I move that the constitution of this Association be referred to the Executive Committee, with instructions to report a more perfect set of by-laws.

Mr. Nelson. I wish to offer an amendment, that if they make any changes they go into effect immediately.

Mr. Robe. If this committee takes it under advisement it would have to pass to the next meeting before these changes could be established.

Mr. Strange. It is to revise, and not to amend.

Mr. Cotton. Our Convention can revise our constitution at any time, and have it go into effect at once.

Mr. Nelson. The Chair holds that any changes made would go into effect immediately.

Mr. Mitchell. As a member of the Executive Committee I would suggest that the Wool Growers take sufficient interest in this to look over the by-laws of the Association, and in the way of helping suggest to the committee, through its chairman, what changes they might think best.

Mr. Strange. I move that the State Legislature appropriate for the Columbian Fair, to be held in Chicago in 1893, not less than \$150,000. Carried.

Mr. Cotton, the retiring President, after thanking the Association for the coöperation and support they had given him during his official reign, introduced Hon. C. A. Howland, the newly elected presiding officer, who said:

Gentlemen of the Indiana Wool Growers' Association:

Allow me to return my thanks to this Association for the honors conferred. I do not know that I possess the tact of my illustrious predecessor in presiding over a convention of this kind, but I am sure of one thing, that the interests of the wool growers will not be lost sight of, and I am sure of another thing, that whatever breeds may be advanced, I shall endeavor to treat you all fair in the appointment of committees, and hold a prejudice against no one. Although I am for my private opinion, we should look after the interest of all the breeds, and those who are engaged in sheep raising and wool industry are engaged in a profitable business, but as I said yesterday this thing can be overdone, and we need not to look always for fair sailing as to-day, though at all times there is a fair profit in sheep

raising. I do not know as I have any further remarks to make, but again thanking you for the honor conferred on me by electing me President of the Indiana Wool Growers' Association, I would ask what the pleasure of the convention is.

Mr. Beeler. If there is no further business, I think we might adjourn.

Mr. Mitchell. I believe it was decided yesterday at the Shorthorn meeting that they would hold their annual meeting next year the same week in January as this year, and this Association should follow immediately after. It would save railroad expense. I therefore move that we meet next year on Wednesday, the third week in January. Carried.

Mr. Darnell. I wish to ask whether there should be a class for home-bred sheep?

Mr. Cotton. I move the committee on premiums be instructed to ask the State Board to offer premiums on home-bred sheep.

J. B. Herkless. I have been an exhibitor and the worst I have been beaten is by home-bred sheep. I do not know whether our Boards are able to pay premiums for two classes or not. If we are going to divide the same money between the two classes, it won't pay to show for the money you would get. Home-bred should be American sheep; all those imported come across the water, while those from Canada are American sheep. It is hard for a society to tell whether they are home-bred or not by looking at the sheep, but they can tell by certificate of registry if they will produce the same one. The motion carried.

Mr. Thompson, from the committee on experts, reported the following as judges at the State Fair: T. C. Phelps, Cal. Darnell, S. W. Dungan, Uriah Privett, C. A. Howland, M. W. Collett and E. H. Crow. Which report was adopted.

J. L. Thompson. I move that this society instruct its treasurer to appropriate \$25 as a premium for home-bred sheep. These sheep should be owned and bred in the State of Indiana.

Mr. Cotton. I move to amend by drawing \$25 to be used as a special premium for Indiana sheep, and leave the committee to form the list as to how the award may be made.

Mr. Phelps. Is this \$25 among all the breeds?

Mr. Robe. I shall vote against it.

Mr. Tomlinson. I am also opposed to that way of proceeding.

The motion was lost.

On motion the Association adjourned *sine die*.

STATE DAIRYMEN.

The Indiana State Dairymen's Association held its first annual session in the lecture room of the State Board of Agriculture, Indianapolis, Indiana, Wednesday, February 18, 1891.

The meeting was called to order at 11:30 A. M., by President C. S. Plumb.

President Plumb remarked that it was so near noon, and there being two addresses booked for the forenoon, it would be necessary to keep things moving as rapidly as possible. There are some matters which it might perhaps be well to bring before the Society at the present time. I refer to the special report of the committee that was designated to present the matter to the Legislature in reference to a bill to prevent deception in the manufacture of dairy products, and for the appointment of a Dairy Commissioner. I, as chairman, should report upon it. I would like to know what the pleasure of the meeting is at this time, as to whether it would be better to wait until this afternoon, when there may be a larger attendance, and now simply to deliver my address. The report of the committee would call for a reading of the law which was designed to be put through the Legislature, and if it is possible to read it to a larger audience this afternoon, I would prefer to wait.

G. A. Stanton, Greenwood. I think it would be better to wait until afternoon for a larger audience.

President Plumb. If it is thought best, I will proceed with my address.

The subject selected by the President was :

WORK TO BE ACCOMPLISHED BY THE STATE DAIRYMEN'S ASSOCIATION.

The coming together of a body of persons for the purpose of forming an organization or an association, is always for the purpose of accomplishing greater results than can be gained by the individual worker. For hundreds of years people have formed organizations, and to-day we have agricultural societies in America very many years old. From the time of the establishment of the ancient "Guilds," bodies of people have co-operated together, until, at the present day, we have upon record a larger number of organized bodies than at any other time in the world's history, and at no time has there been such a wonderful movement in the way of

organized and concerted effort as we find among the farming populace of the present year. While these organizations oftentimes undergo a transitory existence and then die, we find that here and there one secures a firm foothold and passes many years of usefulness in advancing the interests of its constituents.

The State of Indiana has been settled by white men for less than one hundred years since the days when the red man held undisputed possession of the country, and that prince of grazing animals, the buffalo, found abundant sustenance upon the soil of Indiana. In the open occurred an abundance of sweet grasses, while there was no lack of clear, pure water to satisfy the requirements of the grazing animal. But times have changed, and to-day the buffalo and the red man are creatures of the past, and in their places live and thrive the white man and the cattle of domestication. On the 1st of January, 1890, it was estimated that there were 602,354 milch cows in the State of Indiana, having a valuation of \$12,938,564. Many of these cows are used for breeding purposes, but the larger part of them are engaged in supplying milk for the wants of man and in the production of butter. In view of these facts, and in consideration of the truth that milk is the most important article of diet that the human race can depend upon, it seems most essential that those persons in the State of Indiana who are interested in the profitable production of milk and butter, who are interested in the manufacture of healthy dairy products, who are in any wise interested in healthy dairying, should use such efforts as they are capable of toward promoting these interests. To be sure, the individual may be the means of accomplishing very great good in independent action; nevertheless, experience in similar directions has amply demonstrated that an organization of the dairymen of Indiana, working as a unit, may be made a much more effectual body, and may accomplish much greater ends than will the individual. Consequently it seems eminently proper that we should gather here to-day to hold the first annual meeting of the Indiana State Dairymen's Association with definite purposes in view in regard to our future existence, and that we may be able to set out in our initial work in such a way as to draw into our ranks all persons thoroughly interested in the production of milk, butter and cheese.

In order that the question may be answered, as to what work may be accomplished by an organization such as we propose to make of the Indiana State Dairymen's Association. I have thought it best to, in a general way, give suggestion to some of the work that I believe will be of very great good to the dairy interests of the State. While there may be different individual opinions as to the methods of accomplishing the ends in view, I believe that it will be agreed upon by all those present, that the developments of the various thoughts, which I shall here set forth are among the purposes of what is intended in the organization of such a society as this.

First. The first purpose which should occur to each member of this Association in coming here, is of receiving ideas and suggestions from intercourse with those engaged in the same class of work in which he is equally interested with them. There is no man so full of knowledge but what he can gain plenty of useful information from others with whom he comes in contact. Day after day we gather in ideas and hints that are helping us in our business. And the nearer we can come in our communication with those who are engaged in work similar to

our own, the more valuable will be the suggestions and ideas that we shall obtain. One may know how to make good butter, nevertheless, the most progressive butter-maker in the world is the one who is always getting some new point, by which he will be able to economize or improve his methods of work and his products. The man who "knows it all" is, as a general rule, far behind in the race for the prize; and the successful dairyman is the one who seeks all about him for information that will help him in his work. And so coming together from time to time over the State of Indiana, we will be able to exchange experiences, to brush up our ideas, to get more or less new ones and eradicate inferior ones, and to listen to the remarks of those who have made striking successes in special lines of work. If knowledge is the thing to be most sought for by all who attend the public school, none the less important is it that the dairyman should attend dairy organizations with a view of securing the knowledge, which will not only help him in his business, but stimulate him to more enthusiastic effort. From time to time we read in agricultural papers that this or that man has written to the editor, that in such and such a number he got an idea that he would not have lost the benefit of for many times the subscription price; and so in coming here as we do, it is but fair to believe that many, if not all of us, will get ideas that we would not like to lose for all the expense or discomfort attending our coming.

Second. The statement has been made on good authority, that the average cow produces about 125 pounds of butter per year. When we bear in mind that already there has been produced by a cow, between 1,000 and 1,100 pounds of butter in less than one year, it must be that a useful field is before us, in which we may do missionary work in increasing the standard of our dairy cows. If 125 pounds is the average amount of butter that is produced by the cows of Indiana, then let this Association use such influence as it can for a higher standard on the part of the butter-producing capacity of the cows of the State. If the members of this Association come from every part of Indiana, and if they go forth and make known what is profitable and what is unprofitable in the production of butter, there is no question but what the standard of butter production will materially improve within our boundaries. It is simply absurd to think for a minute that any butter-maker can afford to retain on his farm a cow producing such a meagre quantity as 125 pounds of butter for one year. When good dairy cows can be so easily bought, and when bulls of a high grade of butter stock can be so cheaply purchased, for improving not only the quantity, but also the quality of our butter supply, it is apparent upon the face that it is the duty of each member of this Society to see that such facts are properly presented to the dairymen with whom they come in contact.

It is not enough that we should have the cows of our State producing a large quantity of milk. Quality is always of primary importance, and in no place in the world is this getting to be any more recognized than in the creameries of the country that are conducted upon the best business principles. It is desirable that all cows give a good, healthy per cent. of butter fat in the milk. There are creameries in Indiana to-day that are purchasing milk on weight only, without any reference to the quantity of butter fat which may be distributed through the

several hundred weights coming from different patrons; yet it is apparent upon the face of it, that the dairyman who supplies five pounds of butter fat in one hundred pounds of milk is giving much more for his share than is the patron who is turning over to the creamery the same quantity of milk, which contains only two and a half pounds of butter fat. It is the fat that makes butter and not the milk that the creamery is trying to buy. In Iowa, Wisconsin, Illinois, and in other parts of the country we find that the best conducted creameries refuse to buy milk unless it is first tested for butter fat, and that each patron is paid according to the per cent. of fat in his milk. It is evident upon the face of it, that such a method of doing business must positively tend to improve the grade of dairy stock in the immediate vicinity of the creamery, for every patron adopts every method possible to produce a quality of milk rich in butter fat. Contrast this with a case which has come to my attention since the last meeting of this Association. I learn of a certain creamery where it is necessary to test the milk brought to the establishment for the reason that the patrons are beginning to bring such an inferior quality of milk that the manager is perfectly astounded, and remarks that he would not suppose some men would bring in such milk, and he made a positive statement that much of the milk was being skimmed by the patrons. Such a creamery may increase the so-called milk yield of a county, but to all intents and purposes it might just as well be assisted by the town pump. With proper creamery management, and paying each patron on the basis of butter fat in his milk, there is no question but what the quality of the milk produced in the State of Indiana would be materially improved. It has been quite generally the result that where creameries have established themselves successfully, there has been a general improvement in the grade of butter round about, and has resulted in the discouraging of the production of the poor article.

Third. There is constant improvements in methods of handling milk and making cheese and butter. Can this Association make better known the influences which promote these improved methods of work? I feel sure that its existence will further this very object. It is but a few years ago, practically, that all milk was set in shallow pans for the purpose of raising cream; a little later and the deep setting method came into operation, which was afterwards followed by the process of submerging milk in water to get a larger percentage of cream and to isolate the milk from external influences, such as bad odors, etc. On the heels of this line of progress the centrifugal was invented and made a grand success. And now, to crown everything, the climax is reached by the invention of a machine capable of immediately extracting butter from the milk. The best temperature at which to set milk, the best conditions in which to place it, the degree for churning, the removal of all the butter fat from the buttermilk, the best method of working the butter and putting it on to the market, and of the use of the by-products of the dairy, are all questions that can be answered now in a reasonably satisfactory way. In the light of past experience, the great want of the present time is the method of distributing this advanced knowledge among the masses, in order that it may be productive of great good. First, it is necessary that we, as dairymen, should be posted upon the improved methods so that we may be able to disseminate the knowledge so that it will be of service to our fellow workers. We can not afford

to be dead timber, mere sticks. An association to be successful must be an aggressive one. We must adopt all such legitimate devices that lie within our power towards educating the dairymen of the State, for by doing so we shall render a good to all classes of citizens that can not be overlooked financially or otherwise. Our markets are filled with butter, a large part of which is a disgrace to the name under which it passes. The general handlers of butter are frequently ignorant of the proper places for storing it, and it is immaterial to them as to whether it is next to the kerosene barrel or the coffee can.

Everything that is done in connection with the dairy that does not follow what is recognized as a proper method of handling and working milk, butter and cheese in it, is detrimental to the interests of the business. There is no argument in favor of smoking in the dairy, in favor of allowing warm milk to stand in a cattle stable while other cows are being milked, in favor of working butter too much or too little. There should be no argument in favor of any bad practice. It has even occurred to me that were this organization to have printed a small placard of instructions to storekeepers, as to the proper method of keeping their butter while in their stores, that it would be the result of causing an appreciable amount of good, even though the greater majority of those receiving the placard would throw it into their waste baskets.

Fourth. The necessity of suitable laws by which the interests of the dairymen of the State of Indiana shall be protected has already come to the attention of the society, and effective action has been taken in regard to that point. It is hardly fair, to say the least, that the honorable dairymen of the State should be forced to compete with tricksters and unreliable men who water their milk, fill their cheese and sell oleomargarine. This society should have such influence as to most emphatically drive out all such dairying, and it is a pleasant thing to feel that this association, although less than two months old, has already succeeded in presenting to the attention of the State Legislature a bill which is not only intended to prevent deception in the sale and manufacture of dairy products, but which will also create a paid commissioner who will be expected to enforce the execution of this law. As we all know, those States having dairy interests of any importance whatever have already taken active steps to protect the dairymen's interests, and, in at least the States of New York and Wisconsin, energetic warfare is being waged against the violators of the law. It certainly will be gratifying to have an officer who will attend to enforcing a law that will enable us to buy butter that is genuine, and milk that is neither dosed with water nor chalk. The objection to oleomargarine is not from the fact that it is oleomargarine, but rather that it is sold under the pretense of being butter when it is not. There is no doubt but what, in proportion to the quantity made, there is more good, clean oleomargarine made than there is of butter, but every person who makes a purchase is entitled to know what he is buying. Consequently, if oleomargarine is sold on the market, if its character is thoroughly understood and under that name, dairymen need not complain. Oleomargarine as such and sold as such will never be a competitor against butter in the market, and dairymen need have no fear of it in such a light.

One subject comes to me as an important one, and that is the character of the manufactured cheese, as sold in the market to-day. Cream cheese is made to cover

a multitude of sins, and there is no doubt that that which many suppose to be a full cream cheese contains even less than half whole milk, and possibly a great deal of that is beef fat as filling. But this is not as it should be. There ought not to be a pound of cheese placed upon the market that is not definitely branded as to its character. It is a shame that people should have to go to the grocery, or the market, and buy cheese so tough, indigestible and ill-tasting as to make one entirely disgusted with it, and yet very frequently such is the fact. Go to the grocery store and you can not buy any skim cheese, for the grocers all tell you that it is cream cheese they are selling, yet it is green and tough in a majority of cases, and skim milk is a predominant article from which it was made. There are creamery men who believe in making skim-milk cheese, for the reason that they can not afford to put a full cream cheese on the market. But we have just as much right to expect a full cream cheese, when we are buying cheese, as we have to expect butter we buy in the market to be butter and not oleomargarine. Morally speaking, I can see no difference in the principles on which they are sold.

Fifth. In view of the enactment of laws which will protect the dairy interests of the State, it is essential that those laws be properly enforced. While the appointment of a Commissioner is usually a political operation, it appears to me that this organization should have sufficient character to insist that not only a capable Dairy Commissioner be appointed, but that the said Commissioner should be a just and efficient officer. It is difficult to specify in the statute books as to what the qualifications should be of a person to fill such a position, yet it should not be considered a difficult task for this Association to insist that all of the necessary requirements be fulfilled in the character of the appointee. If each member does his duty in maintaining the dignity of the organization and helps to carry out its purpose, without any doubt we shall be able to influence the appointment of the State Dairy Commissioner, and see to it that he does not neglect the functions of his office. Should this Society be the means of the passage of a law for the preventing of deception in the sale and manufacture of dairy products, it will have accomplished enough good to have endorsed its short existence. And should not such a law be passed during the present session of our Legislature, it must absolutely come at no distant day, for no legislative body can overlook the necessity of such important legislation.

Sixth. As to the method of educating our people in dairy industries, and elevating the standard of dairying over the State, it would be eminently proper that we should use such influences as are in our power. If a series of dairy meetings could be held over the State, covering various geographical points, it would, without doubt, do a great amount of good. Supposing a half dozen competent dairy-men and women should come together in some county and hold a dairy institute and give practical instruction for two or three days, would it not result in doing a great amount of good for that locality? It would cost some money to do this thing and it would be necessary to receive initial assistance from the State in order to accomplish it, but it is a purpose in view that it will be well for this Society to have under consideration. The State of New York during the past winter has held a number of these dairy schools, and, from what I can learn, they have been eminently successful. If New York is the greatest State of the Union, if its inter-

ests in that direction are of the highest character, then, unquestionably, in such a State as Indiana, where this movement is just awakening, such schools are more necessary than in those States where we find a more advanced class of dairy work, and while it may not be immediately possible for the establishment of such a series of institutes, such a thing is not at all unfeasible, in the course of a little more time, to be devoted to organizing and devising ways and means.

Seventh. It is not enough to simply produce a good article for the market, but it is most essential that, having produced a thing, to be able to dispose of it at a most satisfactory remuneration, in which one shall receive a just recompense for the labor involved. We are most fortunate in Indiana to possess a magnificent railway system, passing into almost every county in the State. But, having such a railway system, it is desirable that we have a system of transportation with express or freight rates such as will enable us to deliver our goods to outside markets at a very reasonable cost. Individuals in themselves can not secure such reductions in tariffs as can organized bodies, and therefore, as an organized body, I believe that we can materially help society in getting reduced railway tariffs for dairy products over the State, and that such may be shipped with rapidity and success to the various markets available.

In union there is strength. The Indiana State Dairymen's Association is just launching out upon a career that promises much usefulness, to not only the members of the organization, but also to all persons making use of butter and milk products. As we come together from time to time, we should realize that the more we work in unity the more we act as a unit, the more we act in harmony, the more effective will be our purposes. There should be no room for dissension, for anything that will tend to tear down rather than build up. We shall not always agree upon points that bear upon the purposes of our coming together, but we do not cooperate in our work for the purpose of agreeing with one another. We come here to learn. We make up this organization for the purpose of getting knowledge which shall give us greater power. And so, agreeing to disagree, and anxious to hear and learn and look at things and methods from numerous standpoints, let us also, in whatever we do, remember we are responsible for no man's opinion, but that the action of a majority of this body shall meet with no condemnation on the part of its members outside of its session. If in unity there is strength, then so long as we are united we shall be strong. If right is might, then may we trustingly hope that, as an association, we shall always be right and always be strong.

President Plumb. I believe the President's address is not allowed to be discussed as a general rule, which will permit me to sit down now. An address by Mrs. Busick is the next thing on the program.

Mrs. Busick. I think we had better adjourn till after dinner, as it is now 12 o'clock. You know the way to every cow's heart is through her stomach, and that is the very best way to get to a man's heart and mind.

Mr. Van Nuys. Mr. Chairman, as the program for this afternoon is so full, would it not be best to have this address before dinner?

President Plumb. We have a question box here, in which we would like those present to place questions, and they will be answered by the Association, and persons who have made a specialty of the different subjects. I hope it will be made

use of. The various addresses delivered here I hope will be fully discussed. It is the only way we may get ideas. Sometimes we can not express ourselves on paper, but can by being asked questions. What will you do about the question of adjournment?

D. H. Jenkins, Indianapolis. Yes, I think we had better rest until after dinner.

Mr. Stanton. There are one or two on the program for this afternoon who may not be here, and it is possible we may need these addresses to occupy the time.

President Plumb. I think they are nearly all here. Mr. Lagrange will be here.

Mr. H. H. Wheatcraft's motion to adjourn for dinner was unanimously carried.

AFTERNOON SESSION.

The Association was called to order at 1:55 P. M., by the President.

President Plumb. Before taking up the program, as chairman of the committee to draft a bill to the Legislature, I wish to report to the Association what action has thus far been taken by that committee. The committee consisting of Mrs. Busick, Mr. Howland and myself, had correspondence upon the matter. The bill was drawn up and very thoroughly examined by each member of the committee, endorsed by them, and copies of it were sent to Senator Mount, who is a warm friend of agriculture in the Senate Chamber, and one to Mr. Claypool, in the House. I will read this copy because we have only three or four copies printed. It is the only way by which we can benefit the dairymen at large. It is now in the House, I am sure, but I have not been able to learn whether it is in the Senate or not. (Reads the bill.)

Mr. C. A. Harris, Goshen. I move that the bill just read meet the greatest approval of this Association.

President Plumb. As chairman, I do not like to put the motion.

Motion was then put by Mr. Jenkins, put to vote and carried.

President Plumb. It is a little discouraging for us to continue in this work. We hardly believe this bill will get through during the present session, as there are numerous obstacles in the way, but Senator Mount said he thought it would, with some slight modifications, although I think it questionable.

Mr. Harris. Why would it not be proper for each member of the Association to write to his Senator and Representative from each of the different counties of the State to assist in effecting the passage of this bill.

President Plumb. Yes, this is a good suggestion, when we remember that the State of Indiana practically has no laws for the prevention of anything of the kind. I believe there is one law in reference to the adulteration of milk, but the passage of this law would set aside all previous laws on the subject, as it would cover all the ground that they covered. Is there anything further? If not, the next thing on the program will be a paper by Mrs. Busick.

IMPORTANCE OF DAIRY INTERESTS TO THE FARMERS OF INDIANA.

Ladies and Gentlemen, Friends of the Dairy Association and Mr. President:

I am sorry that our honored President made one mistake in the announcement. I have no paper, but I am simply going to talk to you on what I believe will be interesting, but to say that I have a paper to read, with all of the oratorical phrases that usually come with such communications, is not correct.

"The Importance of the Dairy Interests to the Indiana Farmers." I will start out with the thought that was given us by our President this morning in his address, that we have in the State of Indiana, 602,354 milch cows that are valued at \$12,938,564. As you will perceive, the dairy interest is not a thing of small proportions. In fact, it is one of the main interests of the State, from a financial standpoint, and it is for this purpose that I want to call your attention to a few facts in regard to it.

First of all, the fact that I would bring before you is the present difference between the beef and dairy interests of the State. It has for a long time been considered that Indiana was a beef-producing State, as her climate, her grasses and her cereals all tended to make it the largest beef-producing State in the Union up to the present day. A few years ago beef raising was a profitable business, because every calf that was dropped by a cow was considered so much clear property, and was so when reared upon the grasses of Indiana, with corn and cereals as cheap as they were then, and hay at almost no expense whatever. But in late years the great output of cattle from the southwest has so depressed the beef market and cut the high prices that were given for beef breeds, that they have put the question of beef raising entirely out of the question for all time as a matter of profit to the farmers. Hence we, as farmers, must now turn our attention to something else. There is nothing that we have that so quickly brings returns as the dairy, because it is a self-perpetuating institution, because we have the cows dropping their calves, again milking, and still working in the dairy, and thus bringing in a large profit each year through the calves and the dairy, whereas, in beef production, if we realize any profit whatever, the beef must be sold to the butcher, which makes it useless to the farmers. Beef cattle, after they reach a certain age, must have grain to some extent to be in a fit condition for the market. Why not have our dairy cattle fat enough at propagating time and for dairy use? We surely have some satisfaction in thinking that when they are fat enough for working we are not obliged to sell or kill them in order to profit in their rearing.

Again, in dairy matters there is annually increasing consumption of dairy productions. Years ago butter was a luxury. Very few of the pioneers who settled this country—that is of the farmers—had butter every day. Now it appears that there is a supply of butter three times too large. Good butter is a necessity, and there should be a corresponding output of the article. I am sorry to say that all the dairy butter, such as is received at the stores, is not the gilt-edge article that the consumers demand. Much of the butter is not fit to have the name of butter; it is grease of the most rancid kind.

In these later days when to read is to think, the thinking man is holding fast to that which is good. And it has gotten to be a matter of necessity that cows should be of the best, as well as it is a necessity to test for the globules of fat in butter and cream. Butter and milk should be tested to ascertain its richness, and also the profit in producing it. Then we ought certainly to subject the milk to every art for the profit and use of others, and eventually let it become, through the modern churn, good merchantable butter.

It is not difficult for every farmer to test his butter, but every farmer is not so situated that he can test the amount of butter that there is in his milk. It is not necessary to make a chemical test, but we can ascertain the amount of butter the churn will bring out, and that is what the farmer is most interested in.

The butter globules in milk vary in size from 1.2700 of an inch to an infinitesimally small globule. It is from these globules, rising to the surface as the cream, that butter is made; and from this, with the refuse of the milk, is estimated the value of the cow. So we see that our butter product depends upon the number of granules rising to the surface, forming what we call cream.

There is sometimes a great difference between a chemical and a practical test. In a chemical test milk may show three or four or five pounds of butter to every hundred pounds of milk, while the other way will only give one and a half or two pounds.

What we want, what we must have, is an ordinary test of milk that will be at the same time a practical test, which must be gotten through the churn alone. Let me say one word, right here, in regard to churning. There are churns and churns—wooden churns, stone churns, the old-fashioned, back-breaking, stamping churn, and the modern power churn. For myself, I use the "Boss," a cylindrical churn, shaped like a barrel, that is turned over and over by a crank. It is an Ohio production. I am glad to say that Ohio takes the lead, whether it produces presidents, legislators, financiers, Jersey cows, or anything else, including churns. I am only sorry that I can not claim it as my birthplace.

One word to the farmer, as well as the dairyman, and that is, in selecting a churn, get a churn that throws the cream over one way, and in that way liberates the globules of butter fat.

We are told of a cow that only secreted, on an average, of from 125 to 150 pounds of butter per year. On cows of that kind, and at ordinary prices, I am afraid that would not allow very many farmers to retire at the end of the year. But by increasing the quantity of butter, breeding up the butter stock, and with ordinary prices for good butter, the dairy will play an important part in the operations of every farmer. Every farmer can, to a certain extent, be a dairyman, and should be. There is an old adage that a man should not haul, but should drive his products to market—that is, feed his grain, hay and fodder, and sell beef, hogs, etc. Because this is not so, acres and acres of forage grass are going to waste on the farms of Indiana, which should be fed to beef, or better, to dairy cattle, and butter made to put upon the market.

Now, about soil. Soil retrogrades unless it is replenished by manure, which process is just what the wise farmer will follow, thus bringing many acres that would otherwise be of little value back into cultivation. But how are we going to

enrich it? How will we get a supply of fertilizers? will be asked by many. I will answer, by raising stock that will return manure to the earth, which is (1) the cheapest and (2) is nature's own way.

Now, in conducting dairy operations, every pint of skim milk and buttermilk that is left from churning is just that much clear gain, for it can be fed or disposed of in a way that will bring some return. I would advise every dairyman to feed his by-products to stock in such a way that it will bring him the best profit. Let not an ounce of the products of the dairy go to waste. So, instead of narrowing his broad acres and robbing his soil, he will put it all back; yes, and more than all he takes from it. In this way he will reap the greatest profit from dairying, and will prevent any further waste in his soil.

President Plumb. You have heard Mrs. Busick's address, and it is now open for discussion.

Dr. Robinson. I am much interested in practical farming and in practical talks upon that subject, and I must say that this one is certainly highly interesting. There is, however, one point that I wish to touch upon, and that I wish to emphasize, and that is of the terrible waste upon the farms of Indiana. It is a fact that the fertility of our soil is getting away from us, and it is none the less true that we are personally responsible for it. Can we expect it to repair wastes that we are personally responsible for? Yet we find ourselves wondering why the nitrogen in the atmosphere, or some other power, does not bring back, in some mysterious way, the fertility of our fields, of which we robbed it. We have not been using good judgment in the matter. You may ride over the State of Indiana and see acres and acres of cornstalks standing in the field, just as they were left by the huskers, or being trodden down by cattle, when they should be taken care of for winter feed. A friend of mine and myself, when coming from Pennsylvania, were riding past a farm just south of Cambridge City (not Mrs. Meredith's farm), when we saw some cattle in a corn field. He called my attention to it, supposing, of course, they were destroying the man's corn. I told him no, that they had been turned in the field, after the husking, to eat the fodder. He was much surprised and said: "They don't do that way in Pennsylvania, do they?" "No, they do not," I answered, "They value it too highly, and husband every stalk they raise."

It has been found that the cornstalk contains 45 per cent. of the nutritive value of the whole plant. Mrs. Meredith tells us that farming is the only business in the world that will allow a man to lose 45 per cent. of his capital stock and at the same time live. Now, there is not a farmer here but knows that the most of us have been too careless, and as a consequence we are compelled to feed our cattle hay from the barn or straw from the straw stack. If the cornstalk is left standing it simply dries up and loses its nutrition. Now, if we feed it to our cows in this way—in the field—how much less butter will they make than if we cut and stack it and feed it to them in good condition, or as ensilage.

I like to be with my stock. I like to feed them, and to have their approval and sympathy. They are a study that is ever interesting to me. But we must learn to economize, to reform, both in our method of feeding and caring for them.

I am one who claims that I can raise just as good calves on skim milk as any one else can on new milk. I can take calves from the cows as soon as they are

born, and before their eyes are open, and raise every one of them on skim milk. It does not take long to teach calves to drink out of a bucket; and, after a while, the calf will go down to the bottom of the bucket for a handful of oats, and eventually they make the best of cows. Yet we often hear the words, "lost skim milk." Over at my place I raise hogs to help eat it, and I think every dairyman should do the same. This year I can and will haul slop from a cheese factory, and think I will have enough slop, but if I do it will be the first time I ever did.

President Plumb. We will now listen to a paper by Dr. J. C. Arthur, botanist of the Indiana Experiment Station, at Purdue University, on

GRASSES FOR DAIRY CATTLE.

The man who gives his attention to a profession, to an occupation, to any particular line of work, making it his business, is as a rule better fitted to instruct or give advice regarding the practical operations of his work than an outsider, who obtained his information from observing others or from books. The knowledge of details of the various operations gives the person a sense of confidence in the sufficiency of his own knowledge, and naturally leads to distrust of the suggestions made by the uninitiated. The owner of the balky horse is never grateful for the advice of the by-standers. He has driven the animal many times before, and knows all about its idiosyncrasies. The advice so generously offered may be very good, and given in all sincerity, but he has no confidence in it, and generally gives no heed to it.

I am here to-day somewhat in the position of the bystander. It would be great presumption on my part to offer you suggestions regarding the detailed operations of the farm, and of the care and management of stock. I may not even venture with safety to say exactly what kinds of grasses or other forage plants you should grow upon your several farms, just when or how you should establish your pastures, or to what extent they should be grazed.

But, leaving these matters of personal experience, there is a fund of information from which I may draw for your consideration, possibly for your instruction, which is particularly the property of the student and specialist. This is derived from the recorded experience of many observers, accumulated and critically sifted, but often quite inaccessible to the man of action; it comes from the historical study of the subject, but more than all from the many underlying and associated facts established by science. It is from the last source that the material progress of the present era has received much of its motive power, and the art of agriculture and its sister occupations have their interests to serve by encouraging the coöperation of the science.

It is barely two hundred years since grass was first raised by the use of seed as in the case of grains. In 1749 Jared Elliott recommended timothy and fowl-meadow grass for cultivation, especially the latter, at which time little progress had been made. Timothy and red-top have been the favorite grasses in the Eastern States since the days of the Revolution. At that time timothy was introduced into England. But, although the two countries turned their attention to the im-

provement of grass lands at about the same time, England has made far the greater progress. By the agitation and the encouragement of the Royal Agricultural Society, and with the help of many able scientists, investigators and practical cultivators, the knowledge of grasses and the control of meadows and permanent pastures has been pushed far in advance of anything attempted in America.

Probably one of the main difficulties that stands in the way of a better general knowledge of the subject, and greater advancement, is the similarity of various kinds of grasses, which makes it troublesome to readily distinguish them. "Even for a pretty good botanist, there is no denying the fact that it is quite a task to learn to recognize our common grasses; still, it is no more difficult than to match horses well, to judge the weight of a hog, or to pick out a good cow by her general appearance." All Chinamen look alike, we say; and yet greater familiarity will enable us to distinguish them with the same readiness that we distinguish other people. "Meadow fescue (*Festuca pratensis*) is a very common grass in the counties bordering on the Hudson River, constituting about one fifteenth of the crop on the meadows," says Mr. Gould, in one of his valuable articles on grasses. "When it first came in flower this year," he continues, "I asked the first six farmers I met with, what they called it. Not one of them could name it; they were not quite sure that they had it on their farms; they had something that looked like it, but they were not sure that it was the same. Two of them thought it was June grass; yet the difference between the two is so marked that an intelligent farmer should no more confound them than he should confound a horse and a cow." Of course, we all know Kentucky blue grass; timothy, orchard grass, and possibly a few more kinds; but no enterprising cultivator should stop short of a dozen sorts, which he can separate and name with certainty, and if he would be up to the full demand of the times, the number must be doubled.

To help along this rather difficult matter, why not make use of State and County Fairs, of Farmers' Institutes, and of other such gatherings, for the exhibition of well-named samples of valuable varieties of grass, and thus increase familiarity with their appearance and names?

The question whether only one or whether several kinds of grass should occupy the ground of a permanent pasture is one of considerable moment. There is no doubt that a pasture entirely in timothy or entirely in blue grass will prove profitable. The familiar tufts of coarse grasses and weeds, however, which are left by cattle, and especially the mixed character of the herbage upon wild lands, clearly indicate that much difficulty will be experienced in attempting to make one kind of grass entirely occupy the soil. But it is a fortunate thing for the dairyman, on the whole, that grasses naturally grow intermixed. Cattle, like persons, prefer a variety of food, and different individuals have different tastes. "The agriculturist has as much to consider in this matter of feeding as a master of ceremonies; he must consult the capabilities of the situation, the qualities of his provision, and the various tastes of his company."

Furthermore, it has been repeatedly shown that a judicious mixture of several varieties will produce a larger yield than can be obtained where one variety is sown by itself. Many sorts will usually occupy the ground more completely than one sort, and help to keep out weeds. Then it must be borne in mind that

grasses vary remarkably in the earliness with which they start in spring, their resistance to drouth, and their continuance in the autumn. They also have different periods of flowering and seeding. Sinclair, in his famous experiments, found that from the beginning of spring until winter set in there was no time when one or more species of grass was not in its most perfect state. He found that dry weather favored some, moisture that of others, and he believed that a mixed pasture is earlier, gives a better yield, and holds out better than any one species of grass.

Shall pastures be permanent, or shall they be broken up every few years and rotated with cultivated crops? It is the belief and practice in England that it is poor policy to break up any tolerably good pastures for the purpose of converting them into arable land. But England and Indiana are very differently located regarding the factors that control this matter. The report of a farmer's club in New York some time ago gives the key to the situation: "Men who had moist lands, with water under them, believed in permanent pasture. Men who cultivated dry soils, well adapted to a rotation of crops, easily plowed, and especially subject to severe drouths, were very decided in the opinion that permanent pastures are of little value as compared with grain crops and hay and pasture in rotation." The amount and distribution of rainfall also has much to do in deciding which is the best use of the land. In Northern Indiana, and in some portions of the southern part, permanent pastures will doubtless be most profitable, but through all the central part, with its specially hot and dry summers, and often prolonged drouths, alternate husbandry, as a rule, will be likely to be best. But in each section the special situation of the field, the slope, the nature of the subsoil, and the natural fertility, will largely enter into the problem and determine the proper procedure.

What care does a pasture need? I am well aware that usually it gets no care at all, but a thoughtful man will not expect a farm, or even any portion of a farm, to profitably take care of itself. The tall, uneaten tufts of grasses and weeds, which usually dot over a pasture, occupy the ground to little advantage. If sheep are turned in they will get some good out of them. Such spots should be mown occasionally to prevent seeding, and to give a chance for better kinds of herbage to get a foothold. For much the same reasons the droppings of the cattle should be scattered from time to time. But one of the chief attentions that a pasture requires is the maintenance of its fertility. The natural richness of the soil and its situation, as well as the cost of fertilizers, will have an influence upon the particular way in which this is to be brought about with profit. Well-rotted barnyard manure, spread upon the pasture in early spring, will often give most abundant returns. Of commercial fertilizers, nitrate of soda may be used instead of barnyard manure, and potash salts in combination with either of them. Phosphates are usually unprofitable sown upon pastures. The use of fertilizers has a triple advantage: It increases the total amount of feed, makes it of superior quality, and decreases the abundance of weeds and coarse grasses.

It was my privilege, a few seasons ago, to visit the famous estate of Sir John Hawes, at Rothamsted, England. Nothing that I saw at that intensely practical establishment so much impressed me as the experiments upon treatment of per-

manent meadows. The piece of ground selected for this experiment had been in continuous pasturage for more than a century. Something over twenty years ago it was laid off into twenty-two plats, which were partly left untreated, and partly treated with a variety of fertilizers. The plats are cut without permitting seeds to ripen. After the hay is cured it is carefully assorted, and the amount of each kind of grass, clover and weeds ascertained. This annual record for twenty years has given results of great value. It is quite impossible for me to reproduce the data for you here; I wish, however, to quote a sentence or two from one of the reports. It says: "The general appearance of the unmanured plots is one of even growth, with no special luxuriance of any particular plant. The herbage is very mixed, the crop scanty, the color yellowish-green, no one kind being specially favored. The contrast in early summer between the scanty, yellowish-green herbage, profusion of flowers of the various weeds in the untreated plats, and the rich, deep, blue-green foliage and almost total absence of flowers in the treated plats, is very striking." My own visit occurred just as the plats were being cut. The contrasts were certainly remarkable, in the amount of the yield, in the kind of herbage, in the succulency and richness of color. It was an object lesson in the many-sided advantages of preserving fertility of permanent grass lands, which could not have been inculcated by any number of essays or lectures.

What I have already said has been in a measure preparatory to the main topic of the best sorts of grasses for dairy purposes. The list of grasses I have to present must necessarily be brief, and the discussion of their good and bad qualities will only take into consideration their adaptability to pasturage and not their value for hay, or dry feeding.

Probably the most generally valuable grass for grazing purposes in Indiana, if we consider all variations of soil, exposure, neglect and rough usage is Kentucky blue grass, June grass, or simply blue grass (*Poa pratensis*), as it is variously known. "It is noted for root-stocks which spread rapidly and fill the ground near the surface with a close mat of turf, much like quack grass. This makes the grass very tenacious and hard to kill, especially in moist land or in wet seasons when the land is again used for a hoed crop." This very tenacity is one of its valuable points. The leaves are slender and toothsome, are formed in great abundance as a close mat over the ground, and continue to grow in length as they are eaten off by stock, by elongation at the base of the blade; the apex of the blade always being the oldest portion of the leaf. Flowering and seeding are not strongly marked in this grass, and can be almost prevented by close cropping, thus turning all the energies of the plant into the more nutritious leaves. It starts early in spring, and has great endurance for both cold in winter and drouth in summer. It responds more generously than most grasses to moisture and a rich soil, and well repays good care. "Whoever has blue grass," says a Kentucky farmer, "has the basis of all agricultural prosperity, and that man, if he has not the finest horses, cattle and sheep, has no one to blame but himself." "Passing now to the nutritiousness of blue grass, we find," according to Professor Bessey, "that it stands at the head of the list of cultivated grasses, as shown by repeated chemical analyses. It is very nearly twice as nutritious, weight for weight, as timothy. As compared with red top the latter has about five-sixths the nutritious value of blue grass.

Orchard grass likewise has about five-sixths the value of blue grass. It is clear from this that the high rank held by blue grass for pasturage is well merited." The final test of its worth for feeding, and against which the others fall valueless, is the extent to which animals relish it. The taste of the herd is the crucial test, and it is recorded in favor of blue grass, under all conditions.

Next to blue grass in many respects stands timothy. It is one of the oldest of cultivated grasses, and the most widely and favorably known. In habit and peculiarities of growth it is extremely different from blue grass. Its tall, stout stems and strong tendency to seed, its lack of underground root-stocks, the sensitiveness to tramping of cattle and close grazing, make it a more valuable grass for the meadow than for the pasture. It will rarely succeed in a pasture by itself, although I have occasionally seen fair pasture where this was the mainstay. Its best use is for meadows which may occasionally be grazed after the main crop of hay is removed, for temporary pastures where rotation with other crops is practiced, and as a mixture with other grasses in permanent pasture.

Orchard grass (*Dactylis glomerata*) is in most respects about like timothy for grazing purposes. It seeds somewhat earlier, but in habit of growth and character of foliage the two are much alike. Testimony regarding it is very conflicting; some of the best cattlemen praise it highly, and others condemn it with equal emphasis. It is certain that cattle like it before it has run to seed, and that it is nutritious. The only question is its profitable management in the field, and that varies with the individual farmer, and the character of his farm.

Red top or Herd's grass (*Agrostis vulgaris*) is much like blue grass in its fineness of leaf, its persistent root-stocks and light stems. It also stands very near it in nutritive value, according to chemical tests, and is relished by cattle. It is of little or no value for most purposes, however, sometimes being rated with the weeds, except for the dairy. On some lands, especially when unusually moist, it is prized, but is never to be trusted sown alone, and generally can be replaced by more reliable varieties. There are several related varieties, generally known as bent grasses, which do not differ sufficiently from red top to merit separate consideration.

There are two or three varieties of grass related to blue grass, which are of special interest to dairymen. One of these is known as wire grass, or flat-stalked meadow-grass (*Poa compressa*), and another is fowl meadow-grass (*Poa serotina*). Both are fine leaved and fine stemmed grasses, the stems remaining green and palatable after flowering, and both are highly nutritious. Their rather insignificant appearance has caused them to be neglected, but we are told by one of the best of authorities that in regard to the first one it is certain that cows that feed upon it, both in pasture and in hay, give more milk and keep in better condition than when fed on any other grass. The crops are remarkably even; it rarely suffers from excessive wetness or dryness, and responds readily to manuring. If we can believe the evidence of a few close observers, this much despised wire grass will eventually be taken into favor by dairymen especially, and become a more common feature of permanent pastures.

There are several ray or rye grasses, and also of fescue grasses, which have some good points, but they are all coarse of stem and better adapted for hay than for continuous grazing. For want of time, I shall pass them by.

Since the recent activity in this country in studying the economic features of native as well as introduced grasses, a few have come into notice that should be tested for use in our own State. One of these, which may succeed in the southern part of the State, is Texas blue grass (*Poa arachinifera*), which is a more rapid grower than the Kentucky blue grass. Another new grass asking for favor is from the mountains of Tennessee, and others come from the West. There are also native grasses within the State of Indiana, whose economic value, when grown under the conditions of cultivation, have never been tested. If dairymen desire to utilize the best that can be obtained, they can profitably push inquiries in the direction of a better knowledge of the comparative merits of different grasses, especially of new kinds, when tested upon Indiana soil.

It would not do to close this brief account of forage plants for the dairy without mentioning clover. Any of the clovers are valuable for grazing, and have a special value all their own in their power to enrich the soil as they grow. White clover or alsike clover are the most serviceable for land under continuous pasturage, and they should never fail of being included.

It is not within my province to say exactly which of the grasses will be the best for those who hear me. So much depends upon circumstances that can not be concisely stated, that it would be rash to be dogmatic. But sowing the seeds of several of those I have mentioned can not fail to give good results, especially if attention to the after needs of the pasture be given. I trust I have at least fulfilled some of the suggestions I made at the opening of my paper, and provided you with a few thoughts worthy of consideration.

DISCUSSION.

President Plumb. You have heard Dr. Arthur's address, has anyone anything to say on the subject?

Mrs. Busick. I would like to ask the question, is clover a grass?

Dr. Arthur. Now, I think I guarded myself very carefully on that point, as I included clover in the forage plants.

Mrs. Busick. Speaking about forage plants, there is a forage plant in the southwest that is known as the buffalo grass. Does anyone know whether it has ever been tried in Indiana? It is one of the most nutritious grasses I have ever seen.

Dr. Arthur. Buffalo grass is certainly an extremely nutritious grass. But the trouble with it here is that it does not seed freely. The best process for raising it is by inoculation, that is by growing it in small plats. I think without doubt, we shall sometime cultivate buffalo grass.

President Plumb. Are there any further remarks? If not, the next thing on the program is a paper entitled "Indiana's Opportunity," by Mr. W. H. Broadus. As Mr. Broadus apparently is not with us to-day, we will go on to the next paper, by Dr. C. A. Robinson, of Morristown.

THE FARMER AS A DAIRYMAN.

The average farmer is not much of a dairyman. That is to say, he does not consider himself such. He owns cows, of course because—because—he does. He hardly knows why and has to ask his wife, who replies as above hinted.

The average farmer can hardly be said to keep cows. He merely tolerates them. He allows them to occupy a spot or two that can be used for no other purpose to advantage. He does so for much the same reason that he tolerates the poultry, because his wife begs so hard for them. As for himself he has no patience to fool with them; they are for the women.

To him the cow is a creature placed on the earth to consume what nothing else will consume. She is to be fed on corn all winter and allowed to run on grass all summer. It must be distinctly understood, however, that she must have nothing to eat but the "nubbins." Her mission to him is that of a scavenger. She must eat the rotten corn or none. She is pretty good property in that line, because her owner does dislike to raise corn and have it entirely wasted, even if it is rotten, so he puts it where it will do the most good, into the cow's rations. What is more, he knows she will eat it, because she is compelled to do so or starve.

His specialty in farming is spreading over the earth. He boasts that he can take a two-horse cultivator and tend thirty acres of corn. He does it, too, but he is very stingy about feeding this corn to the cows. He is a hog raiser. His hogs won't eat the rotten corn. Why? "Oh, because they don't like it; and again, they don't do well on it." I suppose he means by this statement that they will not grow and thrive and yield a profit on the investment and labor if fed such food.

This is a true statement. It is also true that the horse and the sheep will not eat it, but the old cow will, and what is unintelligible she will yield up a profit even on such food as this.

That the farmer does not give the proper attention to cows seems to be the general opinion and I am not ready to dispute this opinion just at present. In fact I am inclined to the same sentiment, but there are some accusations made against the farmer and his wife, that I am getting tired of hearing. They are gross insinuations and direct insults and have been paraded before the eyes of the public unchallenged for years.

I am getting tired of hearing this constant clap-trap about the farmers' wives being slovenly with their milk and butter. Every now and then we see some self-conceited theorist rush into print and declare that if farmers ever hope to get better prices for their butter they must mix less stable manure with their milk. I hardly know how to command language emphatic enough to express my disgust at such trash as this.

If we are to judge by the fine-spun arguments of people who are unable to distinguish a churn from a cistern, or a barn-yard from a bay-window, the farmers' wives delight in turning out great masses of compost which they are pleased to dub "country butter," and which at the beginning is not fit for axle grease because of the filth that is in it, accumulated from the dirty hands of the makers.

The facts are, the butter made by the farmers' wives is much cleaner than that consumed by people who insist that oleomargarine is superior to country butter. I am not asserting that the farmer's butter never becomes unwholesome or unclean, but I do assert that the filth gets into it after it leaves the hands of the farmers' wives. It is purchased at the door of the farm-house by the traveling huckster, and by him tumbled into a tub that is a total stranger to hot water. The mercury stands at 92° in the shade. Away drives Mr. Huckster, she-whang, she-whang, te-rattle-to-bang, over rocks, clubs, dirt roads, and every other kind of road, until he reaches his next customer. Here he gets another consignment of buffy balls, whose color rivals gold, and colored, too, by nature's butter color.

He opens his tub to empty this lot and finds that the last he purchased is spread out as flat as pancake batter made too thin. About this time along comes a puff of wind that stirs up a young simoon of dust, a good bit of which settles upon the out-spread mass and the golden lumps the farmer's wife has just brought out and she utters a little scream as she sees the result of her efforts so suddenly transposed into a conglomerated combination of the animal and earthly kingdoms. The huckster looks around in surprise, expecting to see a mouse run out of the grass and laughs right out heartily when he learns the cause of this sudden burst of half-scared displeasure. He is so accustomed to such occurrences that he is not visibly affected by this one, and slaps the lid of the tub down, squats himself upon it and drives away in genuine Jehu style.

He follows this routine method all day, and the next, and the next, and at last when he has as much of this mixture on hand as his plug team can pull, he goes to the city to dispose of it. He drives through at night, so the butter will not get over-heated and get away from him.

At the first break of the gray dawn, streaked not a little like his butter, he goes to the commission merchant. The latter examines, inclines his nose heavenward and turns away in seeming disgust. The Samsonian strength and the ammoniacal odor, I admit, are strongly suggestive of the compost heap, but it is no fault of Mrs. Farmer.

The commission merchant finally buys it at his own price and turns it over to his helpers, and pretty soon—plap—plap—you can hear it tumbling into one common vat, where it is stirred up into a homogeneous mass into which is put a lot of manufactured butter color. Then the greasy hands of the not-over-fastidious employes muss it around, manufacture it into small rolls and it is ready for the grocer. The latter takes it out to his corner, places it in his dry goods box refrigerator and pretty soon a lady comes in and asks:

"Any good butter to-day?"

"The finest you ever saw. Just got in a fresh supply, direct from the country. The gentleman drove in before daylight so that it would not be affected by the heat of the sun. There it is, madam, fresh as a daisy kissed by the dew and as yellow as the yellowest gold in all King Solomon's mines."

"Let me taste it," requests the customer, as she picks up a knife that never saw a dish-rag and takes a whack at it and remarks:

"It has the same old twang that all butter made by farmers does, but I suppose it is the best we can do. It has a real pretty color, I confess; perhaps the inside of the roll has a better flavor. You may send me around a pound."

The sun has reached the longitude of 11:30 A. M., and the delivery wagon starts on its round with a lickety-brindle, lippity-cut that would make the original huckster turn green with envy; and when the grocer's boy hands out the wooden butter-dish to the lady of the house, its contents are not unlike a fat boy who has lately stepped on a banana peel.

When dinner-time comes poor Mrs. Henpeck is adversely surprised at the sudden appearance of her liege lord, accompanied by Dr. Gastronomy, the esteemed Professor of the Science of Wholesome and Unwholesome Foods in the Academy of Metaphysics.

The Professor is delighted with the repast, especially the butter. He must have a sample to present before his class. He finds no difficulty in securing it. He takes it to the lecture-room and proceeds to "do up" the farmer and his family for filling their milk-pails with the stable refuse and churning it in the slop-bucket.

He recommends that his students eat oleomargarine in preference to the sample on hand, which he passes round for their inspection. They wisely decide to try it also.

Not long after this the Professor learns that there is going to be a great dairy meeting somewhere. Here is his opportunity; here is his chance to spread himself; his occasion to teach these rusty farmers how to make butter. He prepares a paper as long as the Amazon and about as useless. He uses language that would make Lord Lytton turn over in his grave and Lew. Wallace drown himself in the artificial lake at the Crawfordsville Fair Grounds; but all the while his essay is his epitaph, because it is loaded down with such palpably false statements that it works his ruin rather than his renown.

As the husband of a farmer's wife, I protest against the statement that our wives are filthy, and I shall resent it to the end.

A farmer once brought some very fine butter to a store, and he had scarcely arrived with it when a lady stepped into the store and asked:

"Have you any real good butter to-day, Mr. M.?"

"Yes, ma'am; here's Mr. T., who has just brought in some fine butter. There it is in his pail. I am just getting ready to unpack it."

Raising the snow-white linen, she peered cautiously into the pail and said:

"I suppose this butter is clean, Mr. T.!"

"It ought to be," replied the latter, gruffly; "the old woman and all the four girls spent an hour picking hairs out of it!"

The farmer is truly in the woods. Is there no way for him to get out? Why do some persons succeed in the dairy business, while others do not? Clearly because those who are meeting with success are those who find ready sale for their products at remunerative rates. The general farmer is remote from these markets. How can he bring himself nearer to them?

There is only one method, and one word expresses it—co-operation. If the farmers would compete with specialty dairymen, they must combine their capital.

They must put their money together; establish an industry for the manufacture of milk products. They must own these plants themselves. They must furnish the raw material, and manufacture it themselves into butter and cheese, and place it upon the market without the intervention of these three armies of middlemen.

This is the light in the window for them—the beacon on the shore of the rock-bound sea of adversity—the electric headlight on the fast-flying locomotive of progress.

Times have changed. Man's necessities have changed; his methods must be changed to keep pace with the rapid march of progress, and the grand countersign of success in the dairy business for the general farmer is co-operation.

DISCUSSION.

President Plumb. I am sure we are all pleased with the Doctor's defense of the farmers' wives.

Mr. Jenkins. I think the Doctor ought to have more than one wife.

Prof. Plumb. Perhaps the Doctor has.

Mr. Albert List. The Doctor speaks of co-operation in the cheese business. I don't know about that. I think any farmer can take a herd of 20 cows and make gilt-edge butter, and make a larger profit than he can from 500 cows. I think the butter from the 20 cows will be the best butter.

Dr. Robinson. I was speaking of the farmer as a dairyman. If a farmer can gain a profit with 20 cows I believe that under the co-operative system he can take a larger number of cows and gain more.

Mr. List. Perhaps so.

Dr. Robinson. It is not necessary for people to discuss class. If one could have a butter and cheese factory, operated with 500 Jersey cows, the purchasers from the factory would not, in all probability, have any cause to complain.

Mrs. Busick. With such a herd of Jerseys we could make people green with envy. I believe there is as much in the disposal of butter as in anything else. Now, in the past summer I have seen thousands of pounds of excellent butter sold at eight and ten cents a pound. Where it all came from I don't know. After a careful canvass of all of the grocerymen of the place I came to the conclusion that 200,000 pounds of butter were brought to Wabash in the past year. This does not include the butter brought to private families or to contractors. If 13½ cents was an average price, and all this immense amount of butter were taken that is brought to the groceries, I should like to know how we are going to get fairly remunerative prices for a *first-class* article?

Mrs. Worley. I have been in the butter business about 15 years. I made a gilt-edge butter at first, and have all of the time, but then I was engaged in summer dairying and had some trouble in finding customers for butter, but since then I have changed to winter dairying and I have no trouble at all; have regular customers. I get, by the year, 25 cents per pound. My customers want butter and I have no trouble. In summer the market overflows, while in winter it is generally short. So I say, take winter dairying.

Mrs. Busick. I have a regular price the year round, and contract my butter, which I believe is the best way. I am speaking now to the dairymen who can contract their butter. There is a high and a low price at different times in the year, and the farmer or dairyman who depends on transient customers will get the best price in winter.

Mrs. Worley. By having the calves dropped in the fall instead of in the spring fresh cows can be had all winter; then in the spring there will be less milk. I am very sure I have never heard of a winter dairyman, not having customers.

Mrs. Busick. I have been told by farmers that they could never get over 15 cents for their butter, and more generally 12½, and this was shipped to Buffalo.

Mr. LaGrange. They are talking of cheap butter. Why not make some cheese to sell. There is such a thing as getting a good price for goods. If these farmers, instead of trying to supply an overstocked market, would stop grumbling and sell something for which there is a demand, and in which there is a profit, they would do better. In regard to prices for butter, I had an offer made me for all the butter I could make at 25 cents the year round, and out of Holstein cows.

Mr. Stanton. In some cases butter is contracted and sent to the consumer in such a condition that it is not fit for the table. This makes it bad for the man who comes with good butter.

Dr. Robinson. The question rises right here, should the farmer receive any more for it? I am a farmer and I do not own a Holstein cow, but I would like to. I make butter on the farm in the old style method. I would like to say to Mrs. Busick that I will take her over twenty-five farms in this State, and every one of them using those old-fashioned back-breaking churns. I make butter that way, and get a good price for it, but it is quality and not quantity that they pay for. I get twenty cents for my butter in Indianapolis.

Mr. Jenkins. In the last five years we have had three butter markets. First, at Pendleton, Ind., we paid twenty-five cents and express charges; after that we paid about twenty-five cents in the summer-time, and thirty cents in the winter; now a farmer in Lagrange furnishes us, and we pay him twenty-five cents the year round. Every one of the supplies would run short of butter five or six times a year; I want to say, however, that they are not Jersey cows.

President Plumb. The price depends on the market. If the farmer lives in a strictly rural community, he will get a much smaller price at his grocery for butter and eggs than he would in a more metropolitan district. In the New England States, the highest price for butter is realized of any in the United States. We have some records of parties who receive eighty cents per pound for their butter. All over the Eastern States, where butter is made in abundance, extra good butter will bring forty or fifty cents per pound. Customers spare no expense to get what is satisfactory to them. I firmly believe that if the farmers and dairymen of the West would make a gilt-edged article, and keep up the price, that after a while the richer class of people would begin to recognize them, and be willing to pay for the best.

Mr. Jenkins. Don't understand me to mean that I think good butter can not be had, but the farmers are not getting the price for good butter that they might.

Mr. LaGrange. I will say that I can sell all the butter I can make for twenty-five cents per pound.

Mr. Harris. I can sell every pound of my butter for thirty cents.

Mrs. Worley. And I can get thirty-five cents a pound retail; have done so repeatedly. There is plenty of market for good butter.

Mr. List. We have a market for our butter at from twenty-five to thirty cents. And for this very reason I took my position against being able to make a gilt-edge butter from the milk of 500 cows picked up from the country.

President Plumb. We have represented here some of the most progressive dairymen of the State, and they will understand that what is needed is to raise the standard of butter to get the higher price. As soon as we have gotten a foothold, there is going to be a demand, and the one who makes a first-class article is the one to supply that demand.

Mrs. Busick. I want to say to you, that with the present demand, a good article will always sell on its merit. If farmers make a good article (it is not necessary that it be Jersey butter), and bring nothing but a good article to the market, they can always find first-class customers.

Mr. Jenkins. I would like to have a letter read to the Association.

President Plumb. It will be read by the Secretary.

OFFICE OF THE DIRECTOR-GENERAL, WORLD'S COLUMBIAN EXPOSITION, }
PULLMAN BUILDING,
CHICAGO, ILLINOIS, February 4, 1891. }

D. H. JENKINS, Indianapolis, Indiana :

Dear Sir: Would it not be well for the different Dairy Associations in the United States to take some concerted action looking to a proper representation at the World's Columbian Exposition?

Such an opportunity has never before presented itself, in which the great advancement made in this branch of farm work can be shown, and I fully believe the exhibit will be one that all interested in will be proud of.

I hope you will be able to give me some suggestions that will aid me in attaining the excellent results anticipated.

Do you favor a separate building? Can not each Association select one member, and let those selected meet at some place this winter and discuss plans and the scope of such an exhibit?

I shall be glad to hear from you at any time, and will take pleasure in giving your suggestions careful consideration and a prompt reply.

Yours truly,

W. I. BUCHANAN,
Chief of Department of Agriculture.

President Plumb. I think it would be well for the Association to act on that letter.

Mrs. Busick. I notice there is a feeling on the part of the management of the World's Fair to get expressions from the different Associations over the country to act upon.

President Plumb. Will you take any action on the letter just read?

Dr. Robinson. I move that the sense of this meeting be conveyed to the management of the World's Fair, that a separate building should be erected for the dairy exhibits.

President Plumb. Is this motion seconded?

Dr. Robinson. I will add to that motion that Mr. Jenkins be delegated to convey this resolution to the Dairy Commissioner.

Motion was seconded, put to vote and carried.

President Plumb. The next thing before us is the opening of the "Question Box." The first question is: "Is it advisable to put up ice, if it has to be shipped from the North, for the use of a factory expecting to use from 60 to 100 tons next year?"

President Plumb. I should say that it would be exceedingly advisable to get ice from the North during the winter, if it can be bought for a reasonable figure. Where that much ice is used it would be much better than paying 50 cents per hundred in the summer time. Ice can sometimes be bought as low as \$5.00 per car load, f. o. b.

Question No. 2: "What amount of butter should a cow make in a year to be profitable?"

Mrs. Worley. Prof. Babcock says: "It will not pay to keep a cow that will not make a pound of butter a day." He said this in answer to this same question. Not 365 pounds a year, but one pound a day.

Mrs. Busick. I think that is necessary, very necessary, although very indefinite. It depends very much on the cost of the rations that the cow consumes, and also on the price of butter, whether a pound per day would be profitable, or whether three pounds per week would be profitable. If one could sell all of the butter at \$2 a pound, I should be satisfied for a cow to make 150 pounds in a year. But where we are obliged to take the market price, I should say 300 pounds a year; yet the cost of the food must be taken into consideration. If she is a grade, and secretes a poor quality of milk, and is allowed proper food, she will have to make that much, or more, butter to pay.

Mrs. Worley. Prof. Babcock says that a cow should have the best of food, and will prosper the best under scientific treatment, so to speak.

President Plumb. Here is a question for Mrs. Busick: "What is your experience concerning the comparative value of blue grass and red clover for dairy cattle?"

Mrs. Busick. I have on my farm a blue grass pasture, and have had for many years. I also have timothy meadows. We use hay in the winter time, but for dairy cows I don't believe there is anything equal to blue grass in the early spring. I can not get the best nutriment out of it until that time. Blue grass is not of much use, excepting on paper, unless it has a good subsoil underneath. In our farming operations, in the winter, my husband usually has the farm hands top-dress the fields with manure, of course using a spreader; it is just sprinkled, as with a hose cart. In that way in the winter time the best part of the manure is carried to the roots of the clover, and in consequence we get a crop of from two to three tons per acre of good hay.

President Plumb. Question No. 4 is, "What is the most exhaustive to soil, timothy or orchard grass? Does any one know anything about English blue grass?" The first question is, "What is the most exhaustive to soil, timothy or orchard grass?" I will answer that, if I may, by saying "timothy." Next, "Does any one know anything about English blue grass, or its value?"

Dr. Arthur. I am not certain what is comprised under that heading. I am not sure if our common blue grass is included.

Dr. Robinson. I have some of the grass, and I will send you a sample next summer.

Dr. Arthur. I suspect the grass is English rye grass. That is my belief, as English rye (or ray) grass is very abundant.

Dr. Robinson. It looks very much like ordinary oats.

Mrs. Worley. Does it require a moist atmosphere to do its best?

Dr. Arthur. Yes, it requires a moist atmosphere in which to make the best development.

President Plumb. I was going to say that it is also sometimes called Italian rye grass. This Italian rye grass is a very easy seeder. I have grown them both in New York State, but they were not satisfactory. They suffer severely in winter, if they are not entirely killed.

Dr. Robinson. Yes, it grows very much like ordinary oats, and looks like oats in the field. In season it entirely covers the ground.

Mr. —. I believe I have at home a grass that is what is called the English blue grass. It looks to me very much like the grass just described. It is heavier than Kentucky blue grass, but the fibre is so slippery that we can hardly get a load on a wagon.

President Plumb. Dr. Arthur, here is a question addressed to you, "Is Alsike clover a distinct species?"

Dr. Arthur. It is considered a distinct species. It is like white clover in many of its characteristics. It is a good forage grass, or at least it is so considered. It may be a variety of some other species, but it has real distinctive features.

President Plumb. Those farmers, in the State of New York, who have grown Alsike clover, tell us it has more substance than small white clover, and that it is well adapted to cattle and sheep.

Dr. Robinson. I have been growing a combination of white and red clover. It is of a pink color just before it turns brown. It is very slender. I remember growing it one year, and the ground was quite bare, the growth coming only about to my knee. "It will make good clover seed," said I, thinking, as with other clover, that it was mostly seed, but I was surprised to find that it had hardly any seed at all. I do not understand it.

Dr. Arthur. You may not all know that red clover varies a great deal in its character. It differs in the character of the hay, and also in the plant. Some of the varieties are annuals, some live two years, and some live more than two years. This is due to the difference in the varieties.

President Plumb. The next question is, "Has any one had any experience with alfalfa as a forage plant? Are large English clover and crimson clover the same?"

Mr. Harris. While in Colorado a few years ago, I bought enough alfalfa to

put out one-half acre. That was two years ago. Last year I got three crops off that patch of alfalfa, and this year I expect to get four. I don't think it is a success for silage.

President Plumb. I have had several years experience with alfalfa, and in cool mellow soil, I found it could be grown with great success. Yet the testimony of all who have tried it, goes to show that it is not a profitable crop, unless irrigated, although you can get three or four crops in a season.

Mrs. Busick. On the west side of the Mississippi river, where it is crossed by the bridge at the city of Quincy, are exceedingly high bluffs. These were always considered to be clay banks, on which nothing would grow. At one time a number of car loads of cattle were standing on the side track on the other side of the river, and alfalfa seed that had been brought from the west in the cars was blown over onto these banks. Two years ago when I was there the bluffs were covered with it, and the soil was firm enough to walk on. Alfalfa will grow, if anything will. I think it is one of the greatest forage plants that grow.

Dr. Robinson. Were there any springs along the foot of those bluffs?

Mrs. Busick. Not that I know of. I don't think there were any springs there.

Mr. Goodwin. I beg pardon, but I lived there for four years, and have fished all along those bluffs, and I have drunk from a great many springs right along the foot of them.

Mrs. Busick. All right. I don't know as to the number of springs there may be there.

President Plumb. Coming to the last part of that question, "Is large English clover and crimson clover the same?"

Dr. Arthur. I will answer that by saying that they are not the same.

President Plumb. Here is the question "What shall we do in regard to expert judges at our agricultural fairs?"

Mr. LaGrange. It seems to me that a man who does not know anything about a cow, should not be asked to judge cattle. The judgments passed on some stock, in this State, in the past is enough to make a man swear. Why can not the Fair Associations pay good men a little money for judging cattle and thus secure fair, competent judges.

Mr. Stanton. I think if you go to the trouble to organize a Dairy Association, that it should work for its own interests. The dairymen of the State should not be obliged to take their cattle to fairs to be judged by men who know nothing about cattle. It seems to me that the proper thing to do is to have dairymen to judge dairy cattle.

Dr. Robinson. Unquestionably the Fair Associations must sooner or later meet our demands, and get judges that understand their business. They may plead poverty as long as they please, but they must come to it. I believe that as a rule, the Fair Associations want to please their patrons. There are existing cases of different lines of business securing expert judges, and it was done by the Associations demanding them, and continuing in their demands.

Mr. LaGrange. I am going to move that this Association elect four persons from each of the different breeds, and recommend them as expert judges to the Fair Associations. I make this as a motion.

President Plumb. It is moved that this Association recommend four persons, from each of the dairy breeds, to the Fair Associations, to act as expert judges of dairy cattle at our agricultural fairs.

Dr. Robinson. Would it not be well to name the dairy breeds?

Prof. Plumb. I think it would be a wise provision.

Mr. LaGrange. About the only dairy breeds in Indiana to-day are the Jerseys and the Holstein-Friesians.

Prof. Plumb. Do you wish to amend that motion by specifying the breed?

Mr. LaGrange. Yes, sir.

Dr. Robinson. Will it be advisable to specify the Holstein and Jersey? I hardly think it will be well to specify what breeds are dairy breeds anyway. It may possibly hit somebody who doesn't think that way.

Mr. LaGrange. So far as I am concerned, I have shown stock quite a number of times all over the State, and I have never yet heard of any breeds but Holstein-Friesian and Jerseys competing for dairy premiums. Have you, Mr. Stanton?

Mr. Stanton. No, I have not.

Mr. Wheatcroft. I am afraid specifying the breed in that way would shut some one else out of the competition.

Mr. LaGrange. All I want to do is to get the matter before the Association.

Mr. Jenkins. I believe you will do better not to leave some one else out.

President Plumb. I believe it would be well to put your motion in writing.

Mr. Frazee. Can anybody tell me how to destroy Canada thistles?

Prof. Plumb. The Illinois Experiment Station has published a bulletin on that subject, and anybody can obtain one by writing to the Director of that institution, at Champaign, Illinois.

We have several papers here yet, and I think it would be well to leave the balance of the questions until the night session.

Motion was made to that effect, seconded, put to vote and carried.

President Plumb. I would like all of the members of the Association to vote when a motion is put before the house.

The next paper on the programme is by Mr. C. B. Harris, of Goshen, entitled: "Money in the Dairy if Well Managed."

MONEY IN THE DAIRY, IF WELL MANAGED.

To better answer the question, I think it best to give my experience as a dairyman, with my opinion as to how a dairy should be run, regardless of whether mine is run that way or not.

Several years ago I found myself in possession of a farm two and one-half miles from the prosperous manufacturing city of Goshen. What to do with the "elephant" was a conundrum, but I did not lie awake nights thinking of it. I subscribed for several agricultural papers, and when each came I read and re-read them, advertisements and all; after a while I began to see the dawn of the day in which I hoped to make that farm pay. I thought that there would be money in furnishing cream to hotels, restaurants and families in Goshen. I first investigated

the milk trade and found that there were seven wagons delivering milk in that little city, and on further investigation I found that the price of milk was so low that the profits were not in it, and, on still further investigation, I found that it did not even pay to water the milk, so I made up my mind that if water could not be sold at a profit of four or five cents a quart, that I had better not try the milk business, so into the cream business I launched. I bought a herd consisting of three grade Jerseys, one fifteen-sixteenths, one seven-eighths, one three-quarters; two thoroughbred Shorthorns, not eligible to registry; two scrubs and one Holstein. I sold all my cream without any trouble whatever, but somehow or other I did not make any money. My cows seemed to do well; I fed them enough. The feed consisted of clover hay, corn meal or ground oats with fodder each day, and in the spring, summer and fall the finest blue grass pasture. I still kept on reading and re-reading; got chuck full of Jersey cows and silage, and then I changed my mind. I sold all my cows but the Jerseys, and didn't put crepe on the barn door when they went. I put Jerseys in their place, and immediately did I get an increased amount of cream, but still I did not get there with the money part of it. I kept on reading, didn't let up on my newspapers, kept up an awful thinking, and talked silage to every one I saw that I imagined knew anything about it or had ever heard of it. I again changed my mind, and this time it was on feed. I planted my corn for silage, gathered my crop, and in the fall I commenced feeding it mixed with one quart of ground oats. I soon found that the pocket book was a little heavier, that my cows looked better, and everything seemed to point to the fact that at last I had struck it. That was five years ago, and from that time to this my cows have been high grade Jerseys, and their fall and winter food has been corn silage. For two years last past, I have fed linseed oil meal, old process, in place of ground oats, mixed with the silage. My herd now consists of forty high bred cows and heifers with a thoroughbred Jersey bull at the head, and one of that breed is going to stay there as long as I am in the dairy business, or until some other breed has demonstrated their superiority as butter and cream producers. That there is money in the dairy business, if well managed, I am sure of.

A person going into the dairy business first wants to know in what branch of the business he is going to enter; whether for cream, butter, milk or cheese. After the mind is made up, then let the cows and feed be got for that one branch, and stay right with it. If for butter and cream, select Jerseys or Guernseys; if for milk and cheese, select Holsteins or Ayreshires. Recollect that a "rolling stone gathers no moss." Time, patience and stick-to-itiveness will accomplish most anything, and also bear in mind that the dairy business is unlike any other business or trade; "Six days shalt thou labor and do all thy work" will do in any other business but the dairy. A dairyman has to have seven days in which to do his work, no more nor no less. The cows have to be milked, fed, cleaned and watered and their ailments looked after; the cans, strainers and skimmers must be washed, the barn must be cleaned; all this has to be done seven days in each week. If he has not put in that number of days, then good-bye to the profits of the dairyman who neglects the number of days as well as neglecting his cows. If the product of milk or cream is sold in town, then your customers expect their rations every day. One disappointment may lose you your best customer; no matter what your excuse may

be, the people must have their food. If one man will not get it to them, then another will and the customer knows it.

The duty of a dairyman or farmer is to provide a good, warm shelter for his cows, plenty of ventilation, plenty of windows, so that when the cows are taken up the sun (if it shines) can pour in on them. The picture of contentment and satisfaction that the cow shows that has such a place, will amply repay for the little expense in furnishing the windows, to say nothing of the increased flow of milk that a cow will give that has such a home in which to pass the long winter. It is my opinion that cows ought to be taken up every time that it is cold enough to have a fire in the house. Any chill affects the flow of milk, just as bad treatment does. Don't let the cow stand around shivering and looking as if all four feet were on a ten cent piece. Keep her warm, treat her gently, don't talk to her as if she were deaf, keep her mouth going and no regrets will be heard. I think cows ought to be taken up in the fall and kept up until pasture is ready for them in the spring. You hear men talking about letting cows out for water just to give them exercise. I do not believe that a cow needs exercise any more than a lazy man does, and we all know that a lazy man, as a rule, lives longer and enjoys life better than his friend the hustler. All the exercise a cow takes if her food and water is brought to her is to switch her tail to keep the flies off; she don't switch to any very great extent at this time of the year in this part of the vineyard. I keep my cows up, do not allow any loud talking or whistling in the barn at any time, do not allow anything to go on that will excite the cows in the least. I keep them warm. I let the sun shine in on them. I have no cracks in the side of the barn for the wind to whistle in at. I save feed by having such a place, and consequently save money. When it comes milking time I do not allow any talking at all. The milker goes quietly about his or her milking, sits down and milks just as quickly as possible. I find that the more quietly and quickly a cow is milked the better she likes it, and the more milk we get. I insist on the same milker milking the same cow; they get acquainted with each other and both know what to expect. A cow knows a stranger as well as she knows anything, and for two or three times after a new milker takes a cow, the cow holds back her milk. I am very particular that my cows shall be milked at certain hours. The cow knows just as well as the milker does when the hour has arrived for her to part with her milk, and she parts with it with good grace; but if the time has gone by we find we don't have as easy time in milking or get as much milk. I experimented in salting cows until I found that salting them daily increased the flow of milk—every morning our cows get their salt with their silage. I often add one-tenth sulphur to my salt, and I imagine that it does the cows good; one thing I am certain of, and that is, that it does them no harm.

If a dairyman is so fixed that he can not water his cows in the barn, I advise him to get a tank heater. I have used one for several years with good results. One day when I was leaning on my barnyard fence looking at my cows, farmer style, seeing them chasing each other, and only one or two at a good, long water tank, the fact came to my mind that I had had two of my best cows' udders spoiled by hooking. I says to myself, farmer style: "I'll stop that," and I did. The next morning I dehorned every animal on my place that had horns, and I regard that

morning's work as being one of the most profitable day's work that I have ever done since I have been in the dairy business. I have not had a cow injured by another cow in any way, shape or manner since I took their horns off, and the first lesson a new cow gets when she enters my dairy is a lesson in dehorning. It makes them easier to handle, they are more docile, and it is no uncommon sight now to see a dozen cows at the water-trough, all ages and all sizes, drinking peaceably at the same time. Dehorning makes them more indolent; they don't want to stir around so often, and I think that the consequence is that we get more milk. There are several bosses in my dairy, but the big boss is myself. A dairyman or farmer can save money by dehorning their cattle alone in the cost of the injuries they will receive by hooking and chasing each other. The strong oppress the weak, but with the horns off the strong don't feel so much like it, and the weak are not afraid of oppression when there is nothing to hurt them. I would advise that dehorning be done in cold weather on account of flies.

I am an enemy of the stanchion, and it is a mystery to me why a cow will let down her milk at all while she has to stand in one place day after day, no liberty with her head, in fact, no liberty at all. I want my cows to have all the freedom they want in the barn. I favor the chain, but do not use it. My cows are tied three feet apart by a rope, which is attached to a bow by a swivel. The manger is made slanting, and when the cow lies down, the bow dropping, leads the cow about one foot forward, and then she lies perfectly at ease, and can throw her head around any way she wants, and when she arises the bow forces her back one foot. She stands so that the droppings fall into the pit. They don't, however, insure cleanliness of the cow. There are no partitions between cows. There is no possible chance of the cows getting loose; even if they should, no harm will happen, as they are dehorned—which is another good argument for dehorning.

I feed for cream—nothing else. The ration now consists of one bushel of corn silage twice a day, mixed with a little over one-half pint linseed oil meal, old process. For the noon feed we give them all the oats straw that they can eat, which I consider for my business better than clover hay, as I get as much milk and more money. I notice that several dairymen think it food wasted to feed the noon feed. I don't think so. I believe in giving dairy cows all that they will eat. I believe that there is money in keeping their mouths moving; in fact, I know it. With the ration that we feed at this time, our milk is nearly twenty-five per cent. cream. I have had it fully that.

You will probably think from what I have said before that I am a Jersey man—that's right. The cow for butter or cream dairy is the Jersey. As far as heard from they are the greatest butter and cream producers on earth. There is no doubt about that in my mind, and my experience has taught me that while other breeds have failed with me, the Jersey got me there. I will admit that once in a while a Holstein, Ayrshire, Shorthorn, Devon, Alderney, Hereford or scrub will be found a good butter cow, but they are hard to find as a needle in a hay-mow. Whenever you hear a person telling that they are making a big thing, equal to anything, from butter out of a Shorthorn, or any other breed than Jerseys or Guernseys, you can bet your bottom dollar that that person has several cows and is a first-class butter-maker—it is the person, not the cow, that is doing

that work. If that same person wants to make money out of the dairy business, and will try the little Jersey, there is no doubt but he or she will find that the quantity of butter is larger, and the quality, flavor and color is better, and with his or her experience and reputation as a butter maker, there is no doubt but that an increased price can be had for the product over that of the old cows which they have stood by for so long, especially if fed on silage. Butter from silage-fed cows brings a greater price, and is in greater demand than butter made from cows fed on dry food.

Last year one of the best counties in the State held a butter show. After the premiums were awarded the fact was announced that the butter that took the first prize was made from cream gotten off the milk taken from a Shorthorn cow; thereupon several of the men, Shorthorn breeders who were present, proceeded to get wild. They threw up their hats; they shouted and they hallooed; hugged each other and heralded it to the world through the newspapers that the Shorthorn cow was the cow for the dairy—all because there was a woman in that county who knew just exactly how to make butter. And then again, we hear about the general purpose cow which they say is best for the dairyman and farmer because when you want to turn her off to the butcher you can get something for her. Now, my friends, you can not put milk and beef on the same animal. I don't believe in a general purpose anything—cow, horse, hog, sheep, chicken or man. A cow is either for the dairy or for beef. A horse is either a draft or a roadster. And who ever heard of a man who was equally successful in managing two kinds of business. You hear of a man who is a Jack at all trades; did you ever know that man to succeed at anything?

The time has arrived when to make a success of any business a specialty must be worked, be the specialist a merchant, manufacturer, doctor, lawyer, stock breeder, grain raiser, farmer or dairyman, he will get whatever goods, machinery, medicine, books, stock, seed or cows that will produce the greatest results quickly and with the least possible expense. Then he will get the highest price for his products, because he has paid all his attention to that one business and he has become proficient in it and the buyer knows it. A dairyman's products are cash. When he gets a trade once established, there is nothing that can take it away from him but his own carelessness and neglect. There is now, always has been and always will be a demand for first-class dairy products at a good, round cash price.

I raise all my heifer calves and sell or give away the bull calves. I do not allow the calves to suck the cow. There is no bellowing on a large or small scale in my barn. Two weeks before a cow is due to calve I put her in a box stall, which is her home until the calf is dropped. I don't keep an unprofitable cow any longer than it takes me to find a man who will give me something for her. I want a cow to make me some money; I don't want a cow just to pay expenses—there is no amusement in that.

I use deep-seating cans in which to raise my cream, each can holding five gallons. We set can in trough of running water, which is at a temperature of 54°. I have made up my mind to buy a hand separator, and am going to get one right off. I expect great results from that machine in the way of saving time, work and cream.

I have a hired girl, twenty-three years old, who attends to everything pertaining to my milk business, except milking—the boys helping at that. She drives the wagon, or rather the horses attached to the wagon, sells the product to hotels, restaurants and families, skim milk and all. She does not give away anything; no over-measure—a pint is a pint, a quart is a quart; don't hold fifteen-minute conversations with the hired girls, still she is solid with them all. She does not get scared when the horses prick up their ears. There is nothing about her but strict attention to business, and she says that "driving cream wagon beats getting married all to pieces." If any of you are peddling milk or cream by wagons, put a good, level-headed girl on the wagon and watch the result. You will be more than pleased. You will find that your trade increases and that you get all there is in the business.

Selling cream in town to consumers requires one trip a day, while the milk trade requires two trips between May and October. The boss must be around and watch the business and attend strictly to it; have on his spectacles and his ear trumpet. He must know what his dairy needs; must know every cow and what her product is, as well as he knows his hired man. He wants to know what every cow or man is good for. In the management of the dairy beware of fat cows, small eaters and scrubs. Don't have anything to do with a grade bull, no matter how nice he looks, or what the price is; don't touch him any more than you would a bogus dollar. They are of no account. You don't know anything about them. They have no record, nothing, only probably a few marks to show that they belong partly to some breed or other. Use only thoroughbred, registered bulls of known families. Keep it before you always that the bull is one-half of the herd.

Feed silage. It's the best and cheapest food on earth for dairy purposes. I fed forty head from November 1, 1889, to May 1, 1890, from silage got off of fifteen acres.

The private dairyman or farmer who has only two, three or a half dozen cows, should build a small silo, say eight feet wide, ten feet long, and fifteen feet deep. That silo can be filled off of an acre and a half of good corn ground, if well attended. You can also feed your horses, hogs, sheep and calves, and have some left in the spring. You will be more than satisfied with such a silo and silage. If you want to make butter, get the cow that will do the work. If you have a cow that don't fill the bill, sell her for what you can get, and apply the proceeds on a good cow. Don't pay any attention to the butcher when he talks calves and cows for beef—recollect that he has his eye on his own interest. Did you ever know a butcher who worked for, or even thought of, the interest of a farmer?

Go right ahead, make your butter, bring it to town, and find some family to sell your produce to. Don't be afraid. There are plenty of families who will pay you, in small towns, from twenty-two to twenty-five cents for first-class, gilt-edge butter. If the town is large, you can get from thirty to thirty-five cents. Your product must be gilt-edged. Don't go near your grocer with your good butter; he will pay you no more than he pays for inferior stuff, and then he will want you to take it out in trade. By selling your butter to families, you can pay cash for your groceries and can trade with whom you please. Don't look for high-priced butter buyers among the wealthier classes; they don't buy anything high priced unless it

is for show. The man of small income is the high liver, and the person for you to go to. There are enough families in the smaller class of towns who will buy good butter and pay a good price for all that will be made in that neighborhood.

I want to digress by asking the private dairyman or farmer one question, and that is: "Is marriage a failure?" I will answer the question by saying: No, sir, not from a farmer's standpoint. Breaun, the farmer, says: "I clothe and, to a great extent, pay all the little expenses of my farm from the butter that I make and that I sell. Why, man, every grocer and man in town knows that I make the best butter in all these here parts." Now, what are the facts? Rebecca Jane, his wife, gets up in the morning, builds the fires, milks the cows, skims the milk, makes the butter, hitches up the old mare, goes to town, does the trading, comes home and stays there until she makes some more butter, and then she goes to town again. If that farmer done the work, as he says he does, his butter would not sell for enough to pay one-half of his tobacco bill. No man can taste or smell perfectly who takes his toddy, smokes, chews or has the smell of the barn on his clothes. When you find one farmer who has not one of these vices, you find a thousand that has. It takes a perfect taster and a perfect smeller to make first class butter. Cleanliness is one of the most essential things in the management of the dairy. And that's why Rebecca Jane has the work to do, as she does. Give credit to whom credit is due. Let the farmer make the butter firm: "Wife & I." Divide the proceeds, give the wife one-half as you go along, instead of leaving her one-third after awhile. Try it, and see if you don't prosper. I sell all our product, consequently have to buy our butter. We pay 25 cents to Mrs. Irish and husband. There is "money in the dairy business if well managed" The keeping of a cow cost me forty-six dollars a year, the expenses divided as follows:

Silage	\$3 00
Linseed oil meal, old process	2 00
Oat straw, if I buy it	4 00
Pasture	5 00
Help, including every expense except feed	32 00
Total	<u>\$46 00</u>

The actual cost of feed is four cents per day.

I get 26 $\frac{1}{2}$ cents for my product.

A successful dairyman subscribes for and reads just as many newspapers pertaining to his business as he has time to read. There is something in them every week that is a source of benefit. They will keep you posted as to what your brother dairymen are doing all over the country, and how he does it, and that will pay you for your subscriptions a hundred fold each year. There is no other medium through which you can gain the information that you want. They contain the proceedings of conventions and institutes. They contain the opinions, almost every week, of the successful dairyman, and some who are not so successful who want to succeed, and maybe you can give them some pointers. Stick to your agricultural papers and they will stick to you. The market reports alone for one week will be worth more than the price of the paper for one year.

The State of Indiana is so situated that every trunk-line of railroad has to run across the State from east to west. We are so situated that at a very small expense we can put our products into all of the best markets. We can become one of the very best dairy States. We have the soil; we have the men and women, and we have the cows with which to get there. It now rests with ourselves whether we wish to go up to the head and stand with the thoroughbred, or remain back among the scrubs and let our dairy interests be a by-word among the dairymen of other States. It is the duty of every dairyman in Indiana to become a member of the Indiana State Dairymen's Association. Let us get together at yearly meetings and consult as to what is for the best interest of us all. Pull together and work like troopers; do not let any little jealousies mar our intercourse. Recollect that there is always room for any amount of good dairy products. There is no use in letting New York, Ohio and Wisconsin get away with us in the quality of our products. We can, if we try and pull together, make a reputation for as good dairy products as any of them, and get the top price, and, in order to reach the top and stay there, and get the price, we must use three articles, absolutely essential financially and otherwise in the dairy business, for butter or cream, and these three articles are BRAINS, JERSEY COWS and SILAGE.

DISCUSSION.

President Plumb. You have heard Mr. Harris's paper. Do you care to discuss it?

Mr. LaGrange. Do I understand Mr. Harris to mean that he advocates letting his wife milk the cows?

President Plumb. I have never heard of a man who made a success at that business.

Mr. Harris. No, I never have either.

Mrs. Busick. I agree with Mr. Harris on every point but one, and there I take decided issue with him. I would, if I had my way, prosecute every man who sawed the horns off of his poor dumb animals. If the horns were destroyed while the animal was yet a calf, it would not be so bad, but to take a full grown animal, and saw through the sensitive horn, is a shame, and a crime. Just think of it. To make them a little easier to handle we take the appendages nature has given them. We must saw through the sensitive nerve centers. It is cruelty. In Scotland and England, laws have been passed against it, and I honor the Chief Justice who so nobly fought against torturing the poor beasts.

Mr. Harris. You have my heartfelt sympathy Mrs. Busick. Like you, my sympathies were all with my cows. Oh! how sorry I felt when the first horn was taken off of a cow on my farm, and I felt sorry, too, for the next one, but when they were turned loose, they seemed to pay no more attention to it than if the hair had been cut off from the end of their tails. I don't believe that the "nervous shock" amounts to anything. As far as I am able to see, the animals are a great deal better without horns, and I shall dehorn every cow that comes into my possession. I do think it is better to take the horns off in the winter time, when the animal will not be annoyed by flies.

Mrs. Busick. I can not believe that it makes better cows, and if you must dehorn a bull to quiet him, why just cut off his horns right back of his ears and be done with it. I want to record my sentiments against the practice of dehorning.

President Plumb. I very much dislike to take sides against Mrs. Busick in this discussion, but I fear I must. About a year and a half ago, there was an extended controversy in Scotland, regarding the dehorning of cattle, and it was decided in the courts that it was cruelty to animals, but more recently the question has been again before the courts, and decided in its favor on the testimony of competent veterinarians. I think the first bulletin published on the subject in this country, from the scientific standpoint, was written by myself. The dehorning was supervised by a Veterinary Surgeon, who was a graduate of an American Veterinary College, of very high standing. The animals were all examined and their temperature and pulse recorded before dehorning. The veterinarian not only stayed a while after the dehorning was completed, but made three or four visits afterwards. These animals were undergoing a feeding experiment at the time, and they were not disturbed in the least, and not one got off his feed. You must remember that this veterinarian was opposed to dehorning, but he was obliged to say that the animals were not suffering from any great pain, and there was no fever or high temperature of consequence. At some of the experiment stations, experiments have been made to see if dehorning had any effect on the flow of milk. In all of the observations it was found that it made no perceptible difference.

Mr. LaGrange. I have had some experience with cattle, and also with dehorning them. I had a Holstein bull and he came very near killing me, but luckily I escaped. I turned the matter over in my mind, and talked with three or four men on the subject, and at last I took his horns off, and after that there was not an old cow on the place that was as gentle as he was.

Dr. Robinson. A neighbor of mine is in the habit of dehorning everything he owns in the shape of cows. He made some experiments on the effect of the dehorning on the flow of milk, and told me that never, in any instance has the supply decreased or increased from the effects of taking the horns off, even at the first milking after the operation. I am satisfied that it is the proper thing.

Mr. Jenkins. I suggest that we adjourn, and let the remainder of the papers and the question box come in the evening session.

Mrs. Busick. I admire Mr. Harris's paper, and I hope he may come at last to take a humane view of the subject of dehorning.

Mr. Harris. You know, Mrs. Busick, that I am in the dairy for money, and as long as I believe that there is money and no harm in dehorning cattle, I will cut them off. The only difference between us is, that I am a man and you are a woman.

President Plumb. You will bear in mind that a cow's horn is composed of bone, and pure bone has no feeling at all.

Mrs. Busick. I would like to quote just one sentence from Pope:

"Vice is a monster of such hideous mien
That to be hated needs but to be seen,
But seen too oft, familiar with her face,
We first endure, then pity, then embrace."

President Plumb. That is a fine sentiment, Mrs. Busick.

Mrs. Busick. In the matter of properly sustaining the interests of this association and of the dairy business at the World's Fair there seems to be only one thing to do, and that is to appoint some one from this association to confer with representatives from other associations to take such steps as are necessary to advance dairy interests. These men might work for the appointment of a World's Fair Dairy Commissioner.

Mr. Jenkins. It won't do to be too hasty in the matter, but it might be well to have men ready to act as representatives of this association at some future time.

Mr. Goodwin. I think you have entirely overlooked the fact that there is a World's Fair Dairy Commissioner now, and Mr. Buchanan might not care to have his assistants appointed for him.

Mrs. Busick. I believe the committees have a good deal of the work in charge.

Mr. Goodwin. There are three or four committees. A committee to inspect cattle, dairy products, and a special committee for the dairy interests from New England to the West Shore.

Mr. Jenkins. Was that committee appointed by the World's Fair Association?

Mr. Goodwin. It was made at a meeting of representatives from Canada, New England and the entire West, and it was certainly an assembly of as representative dairymen as could be gotten together. That committee has been since then actively at work.

Mr. Jenkins. It seems to me that organizations should be in readiness to assist all they can.

President Plumb. I believe the State of Indiana has no one to represent the dairy interests. As I understand it, other States have a commissioner to represent their dairy interests. In other words, as we stand to-day the State of Indiana will have no voice in anything that may pertain to Indiana dairy matters. Now, if some one is appointed from this association to act with the World's Fair Dairy Commission it will be a wise provision.

Mr. Goodwin. So far as the World's Fair people are concerned, they have gotten no further than the appointment of a Chief of the Department of Agriculture. But a man or committee might go to Chicago and do the same work that would be accomplished by the regular Commission. I do not think that Indiana has a representative in that organization. I am sure that she has no working delegate up there.

Mr. Jenkins. It would show a willingness on our part to have a committee appointed from the State of Indiana to look after the dairy interests at the World's Fair. It is probable that they will expect something from us.

Moved and seconded that Mr. Jenkins be appointed to act for this association in the matter of a dairy exhibit at the World's Fair, if his services are required.

Mrs. Busick. That is a good motion, and will show that we appreciate the situation, and that we wish to forward the dairy interests of the State.

Motion put to vote and carried.

Mr. LaGrange. I have my motion written now, and would like to put it before the Association. "I move that the President be instructed to appoint expert judges (three if possible) from each of the principal breeds of dairy cattle, to be

recommended to the State Board of Agriculture by the Indiana State Dairymen's Association, to act as judges at our agricultural fairs."

President Plumb. We have plenty of material for the judges in other breeds, or in most of them, but for the Ayrshire it will be necessary to go outside of the Association.

Mr. LaGrange. I suppose you can get any person in the Association, but it would rather be presuming on authority to ask a person outside of the Association.

President Plumb. The Association might invite some parties outside to act as judges, if they would care to do so. The motion made by Mr. LaGrange, concerning expert judges, is now before the house.

Carried by a rising vote.

Mr. Jenkins. I move that we adjourn until the evening session.

Motion was carried and meeting adjourned at 5:15 P. M.

EVENING SESSION.

Called to order at 8 P. M., by the President, with the remark that as it was already a half hour late, he would wait no longer for absent members. I will open the question box and propose the questions, without waiting for the Secretary, if it is thought desirable. The first question is, "Does it pay to run a butter dairy not in connection with the farm?" I think there is a possibility that that may refer to oleomargarine.

Mr. ———. I think it will undoubtedly be a failure all alone.

President Plumb. Mr. Harris wants to know "What shall we do to be saved?" Mr. Harris imagined that I would not know his handwriting, but I did recognize it.

Mr. LaGrange. It's according to whether Mr. Harris means financially or otherwise.

President Plumb. "What is Johnson grass?" I will answer that question. It is a grass belonging to the sorghum family, although much smaller. In the Southern States it is regarded as a fine soiling grass by some. It has strong root stalks that run along under and on the surface of the ground. It is a fine thing for the warm climates, but can not stand cold. It has some excellent feeding qualities, when used for green fodder, but we are hardly justified in putting it up for dry fodder. It is not as coarse a fodder as corn, and is not used nearly so much. We have decidedly better fodder crops. The next question is, "Was the price of grain more favorable to the production of beef ten year ago than now?" Really I do not see how that applies to a dairy question box, although if anybody can answer that question, whether pertinent or not, it should be answered. (No answer.) "Is a barrel churn any better churn by being made in the State of Ohio?" I think we will reserve that for Mrs. Busick. "What brand of dairy salt is the purest?" I will say that a number of very excellent dairy salts are made. The Higgins dairy salt is universally recognized as being of good quality, and can be purchased very generally over the different parts of the country. The Onondaga is also a very good salt.

Mr. Jenkins. Did you ever know anything of the Genesee salt?

Mrs. Busick. Yes, and it is no good.

Mr. Schwegler. I believe the creamery men over the country generally like the Genesee salt.

President Plumb. I suppose there may be possibly some little difference, but it probably is a very little. "What ails my silo? Three walls tight, tarred paper between; filled with corn, cut 15th and 16th of September; tightly packed, covered with cut up hay and oats, much spoiled on the sides." I will refer that question to Mr. Harris, as he is authority on silos.

Mr. Harris. I think that possibly the paper got torn, or rats got in and let the air in. Evidently it was not air-tight or the ensilage would not have spoiled.

Mr. ———. The silage was not trampled down around the sides of the silo as much as it was in the center.

Mr. Harris. I do not trample it at all.

President Plumb. I have found in a practical experience of eight years that where we put on heavy weights, excessively heavy weights, that it was of no practical benefit. When putting in our ensilage this year, we had a man go around the sides and trample it down, from time to time, and our ensilage was perfect clear to the top. We had fine ensilage without any loss excepting in front of the doors.

Mr. Harris. Previous to this year, I cemented the silo all over inside, and didn't trample the silage a particle and we didn't lose any ensilage either. Heretofore I lost some every year that I packed it down.

President Plumb. Has anybody else any experience on this question?

Mr. Schwegler. I have had five years experience in the silo business. I agree with Mr. Harris that it does not pay to pack silos. I do not believe that it pays to plaster a silo either. The more heat and moisture we can keep in the silo, the better will be the results.

President Plumb. Has anybody else had any experience in this direction? If there is nothing further to be said, we will proceed with the business of the meeting. Mrs. Worley was to have the next paper, but in view of the fact that she is tardy, I suggest that we take up the topic assigned to Mr. Jenkins, "The Needs of the Dairy of Indiana." The reason why I suggest this is, that I am sure that there are several parties outside of the meeting, who will be especially interested in listening to Mr. Smith, therefore it will be well to hold his paper. These parties understand Mr. Jenkins very well, and know just where he stands in the dairy business, but they do not understand Mr. Smith's position, so I think it would be well to wait. I have the pleasure of introducing to you Mr. Jenkins, of the *Jersey Bulletin*, who will now entertain us.

THE NEEDS OF THE DAIRY IN INDIANA.

Mr. President and Members of the Association :

I should not have had the courage to appear before you to-night were it not that in honoring me as one of your officers you have shown a kindly willingness to take the will for the deed; to accept the willing spirit, though you may recognize the weakness of the flesh.

I shall speak, not as an expert, but as a layman, as a looker-on of some of the things I think I see to be needed by Indiana dairymen. What the dairy needs in this State differs only in degree, and not in character, from any other State; they have only been neglected longer. It is quite true that different localities differ in degree of needs and requirements; what is best here is not always best over there.

Of the vastness of the dairy interest I need not speak. You are one and all familiar with the fact that the money annually expended in Indiana for milk, butter and cheese runs up into the millions, and this vast volume of wealth is not gotten in one great stream, owned by a few for the benefit of a few, but, like the great showers of rain, it comes from every nook and corner of the land.

First in importance, and formost in order, is organization. Not organization simply for organization, but organization for protection of common interests, and organization for mutual and individual benefit. This need is common to all, from the most accomplished dairyman, perfectly equipped with all the appliances known to the art, to the merest tyro just beginning with his one cow and tin pail. Both alike need protection from frauds and counterfeits, and without organization neither can secure protection. It is this common need that has given rise to this Association, and as the need is common, so we have a common claim upon every man and woman in the State who is engaged in the dairy business to come forward and unite with us. This claim I wish to emphasize, and I venture to suggest that our organization will not be complete until we have secured a branch association in every county in the State, for the great majority of farmers now have, and every farmer may have, more or less direct pecuniary interest in the dairy business. The dairy cow is the tutelary rural divinity.

We need a clear, comprehensive and rigid law for the protection of all food and dairy products from adulteration, counterfeit or fraud, and we need a food and dairy commissioner, with ample powers and every conceivable motive and desire for executing the law in letter and in spirit. In our own interest, and in the interest of the health of the entire community, it is our bounden duty to use every means within our power to secure the enactment of such a law and the appointment of such a commissioner.

For mutual improvement the dairymen of Indiana need organization and education. Not school-book education so much as that higher, broader, deeper education that comes of observation and experience that begets conviction and breeds knowledge. They need organization that they may come to know one another, to exchange experience, and swap ideas, that they may cultivate and foster a proper pride in their calling, which shall stimulate and emulate an ambition to excel. By means of this Association and county branches a steady march of improvement may be set in motion, and much immediate good may be accomplished. Auxiliary to these are farmers' institutes and dairy schools. Each of these have their proper function and their appropriate time and place, and should be used by the dairymen for all they are worth.

There is another agency for spreading knowledge, encouraging improvement, and stimulating the spirit of progress, that for extent, variety and persistency of influence, ranks second to none, and that is the agricultural press, and I do not hesitate to place foremost among the individual needs of the dairymen in Indiana

at least one good special purpose dairy paper, one good general purpose farm paper and one good newspaper. Happily, as things are, I know there is no Indiana dairyman so poor but that he may pay for all three, and I hold that no one does his duty to himself, his wife and his children, who fails to provide either.

In the matter of dairy fixtures and dairy implements, Indiana dairymen need, just like all others, the best. Competition is too close, and the struggle for supremacy too severe, for any one to hope for success who denies himself any advantage. As to what method is the best, or what implements, it is not for me to say, even if I knew any one that was best for all. There is no one best machine or system. Conditions govern, and that is best for each which best suits the surrounding conditions; and there are fitting places alike for the open pan and deep can of the gravity process, the separator, and perhaps the extractor as well. So I can but repeat, "Prove all things, hold fast that which is good."

But before all things else, and above all things else, to the dairyman stands the cow—the fountain whence all his earthly blessings flow. In no other particular in the dairy business is there so great need of improvement as in the cows. I know of no actual collection of tests, as to the average yield of butter per cow in Indiana, but, judging from the census returns, and by comparison with careful estimates made in Minnesota and Wisconsin, this average can not exceed 125 pounds a year, which at 20 cents a pound is \$25 a year. Now, under the best of management, these cows cost \$20 a year for keep, which allows the farmer \$5 a year for the labor of feeding and milking, butter-making and marketing; and this, mark you, is the average, below which many more than half the cows fall. They do not pay for the little food or attention they get. Here we reach the very core of the cause of the trouble; here the greatest need of Indiana dairymen, here the remedy, here the reform must begin. Without better cows, neither creameries, separators nor extractors will avail anything. The cows must be improved; but how? While the average cows of the State make this pitiful showing, there are a number of herds in the State that average 300 pounds of butter a year, none of which is sold for less than 25 cents a pound; that is \$75 per year per cow. Now allow one-third more a year for the feed of these cows, or \$30 a year, and we have still a profit of \$45 a cow, as against \$5 for the average.

I might quote you very many for higher records than this, both for quantity of butter made, and the annual price attained, but I purposely confine myself to figures which are easily within the reach of any man or woman of ordinary intelligence and energy. I do this because I feel it to be my duty to the dairy interest of the State to point out, what to me appears to be the pressing need of the time, and what the quickest, surest and easiest means of securing to Indiana dairymen the needed reforms. There is a call, says John Gould, for only one kind of butter, "that is the best." In order to meet this call and have only the best kind of butter, the dairymen of Indiana must have what is most needed to make it. These needs have been laid down so often that it seems almost foolish to repeat that to make good butter one must have good milk, rich in butter fats, and to have good milk one must have good cows; so we find to sum it all up, the needs of the dairymen of Indiana are: Intelligent men and women engaged in the business, good houses for handling the milk, cream and butter; good utensils and arrange-

ments; and don't forget the churn. You can't make butter without a churn; you might as well try to make pure butter without a cow. When you have the butter churned, well worked and weighed on a good scale, then, and not until then, have you the true and only test of your cow's commercial value, all other so-called tests to the contrary notwithstanding. Food enters largely into butter, for good or bad. Also comfort of cows; cows can not be comfortable and hungry at one and the same time. The success of all I have mentioned depends largely on the good judgment of the dairyman. Again, last, but not least by any manner of means, in fact first of all and above all, the Indiana dairymen need good cows. Get the best cow, and that cow is the Jersey.

Professor Plumb. There seems to be no desire to discuss the subject further and we will pass to the next topic by Mrs. Worley, entitled:

DAIRY BREEDS OF CATTLE.

The principal breeds of dairy cattle are the Kerry, Breton, Normandy, Guernsey Ayrshire, Swiss, Jersey, Dutch Belted cattle and the Holstein. They all possess the approved milk points in a greater or less degree: namely, wedge shape, great capacity for food, a great appetite, a most active digestive apparatus, together with large lacteal glands, big udder and full milk veins.

The Kerry or little Irish cow is but little known in America, though the rearing of cattle has been a principal feature in the industrial pursuits of Ireland from the earliest period of which we have any record. From the remains of steers found in the bogs of Ireland, it is proven that so far back as the eighth or tenth centuries, there existed a race of cattle, which, for beauty of head and shortness of horn, might vie with some of the best modern improved breeds. According to Sir William Wilde, there were four breeds—the straight horned, the curved or middle horned, the short horned and the hornless or Maol, or Moyle. The Kerry breed, which belongs to the “curved or middle horned” race, must be considered the sole modern representative of the earliest breeds of Irish cattle. The Kerry cow is a handsome animal, small in size (sometimes the cows do not exceed forty inches in height at the shoulders), light, neat, active, with fine and rather long limbs, fine small head, lively, projecting eye full of fire and animation. The horn is cocked and tipped with black. The color of the cattle is either black or red. The tendency of the Kerry to breed back to the old type proves it to be an original or native breed. The cows are very docile, and have the property to bear confinement well. One cow is known to have been kept five years in a stable in Dublin, during which time she had only two calves, and was scarcely ever dry, keeping up a full supply of milk for a large family. The Kerry cow is easily kept, and this characteristic combining with her milk producing qualities entitles her to be called “the poor man's cow.” The average yield of milk is about three gallons a day, making four to six pounds of butter weekly. This is a large yield, considering the size of the animal and the amount of food consumed. The Kerry cattle fatten rapidly on even middling pastures and the beef is exceedingly fine and well flavored.

The Breton cow comes from Brittany, the northeastern province of France. It is a foggy region, where the sturdy peasants wring a frugal living from the soil or sea. The cattle are black and white in color, small, symmetrical and extremely hardy. In summer they have but little if any care, but do the best they can cropping the scanty herbage of the granite hills or heathery moors. In winter they are given limited rations of bog hay and crushed gorse, and then sent out to pick what they can find. They are very tame and appear to have no vice. They are as much a part of one family as the Irishman's pig, so the cow house is only separated from the living room by a bit of baize or canvass. Their size is from thirty-six inches to thirty-eight in height. Despite privation and hardship (for safety and shelter is about the extent of what the owner's roof affords) they are "a blessing to the sick and a providence to the poor." The cows give on this treatment from three thousand five hundred to four thousand two hundred pounds of milk per year, and make from three to seven pounds of butter per week. They are too small for beef, but are greatly improved in this respect by a cross with the Shorthorns. Their color and general characteristics lead to a supposition of a common origin with the Holstein-Freisans. Brittany cattle, when placed in localities where the soil is more fertile, become, in a generation or two, changed as if by an enchanter's wand. The poor, attenuated form expands, assuming the form of a deep-carcassed, shapely animal, while preserving its deer-like head and limbs, and it is perhaps better not to cross with other breeds, but to seek improvement for the dairy by better care and feeding.

Normandy cattle bear a great resemblance to the Guernseys, while the Jerseys are more like the Belon cattle. They are a large breed, soft-haired, yellow-skinned, and deep milkers. The butter of Normandy is famous. It is exceedingly high colored, and large quantities of it are sent to the London market. The prevailing color of the cattle is brindle taking on hues of black and red. It is remarkable that so good a milk breed can be so profitable for beef.

The Swiss cattle have been but little imported in this country, but Switzerland has been famous for its pastures from the earliest historical times. The word Alp means a mountain pasture, or rather a mountain covered with pasturage, and is never applied by the Swiss to rocky or snow-capped peaks. On these Alps, and in the valleys, breeds of cows have been developed which are hardy milk-givers, bearing all vicissitudes of the weather, and yielding a rich and abundant milk. The cows are stronger boned and have much less style than the Jerseys, though they resemble them in their beautiful silver-gray color and mealy muzzle. They take on more flesh than the Jerseys, and sometimes approach the Shorthorn in weight. Many writers consider the Swiss cattle as the original stock from which the Jerseys are descended. Twenty-quart cows are common, and those giving twenty-eight and thirty are not rare.

The Ayrshire cattle are a decidedly composite race. The hardy, native breed of the county of Ayr has been wisely built upon by taking such crosses as would promote an improvement in form and milk-production without weakening the constitution of the parent stock. This has resulted in an exceedingly useful breed—good milkers, hardy and prolific, long-lived, and doing well under good or rough treatment. Good Ayrshire cows give from four thousand to five thousand

pounds of milk per year, and there are records of eight or nine thousand. The Queen of Ayr yielded 9,404½ pounds on an average for six years. The cattle are red and white in color. The cream globules in Ayrshire milk are small; the cream rises slowly, and is easily stirred back into the milk. It is claimed to be the most digestible milk in the world.

The Channel Island cattle are two distinct breeds, the Jerseys and the Guernseys. They are remarkable for the richness of their milk. The Guernsey breed for the excellent rich color of the butter, while it is said that of the Jerseys excel in firmness. The Jerseys are more delicate in form and more varied in coloring, yet are equally hardy. The Guernsey cows are usually yellow or fawn color, broken with spots of white. They are heavier and larger formed, and possess more beef points than the Jerseys. Their breeders claim for them the richness of the Jersey, with size approximating the Holstein or Shorthorn, and producing the richest colored butter of any breed of cattle. The cows are low in stature, and their size is not so notable as it would be otherwise. As it has only been within the last twenty years that the Islanders have kept any record or pedigree, comparatively little is known of this very fine breed. It is one of the purest breeds known, as the Guernsey people have very strict laws against the importation of foreign cattle in the island. They are much more exclusive in this respect than the inhabitants of the island of Jersey, and it is this exclusiveness which is their boast and pride. The old cow Cattie and several of her descendants gave from sixteen to twenty quarts a day, seven or eight of which made a pound of butter; Lucille, a Guernsey cow, made twenty-nine pounds of butter in a week, and a number of others eighteen and twenty; Kathleen, twenty-two pounds. Carrie of Green Bank weighed 1,440 pounds, and Hazlenut, 1,414. This is a good showing for general-purpose cows, which their breeders claim they are.

The Alderneys come from the island of Alderney, but are the same breed as the Guernseys.

The most popular of all dairy breeds, however, are the Jerseys. The first Jersey herd of any note was owned by Colonel Dannery, of England. One day in the year 1821, while out riding, he saw a "little lemon farm cow," with a white ring around her nose. She was a Jersey, and her name was "Pug." He purchased her because she struck his fancy, but she afterwards did more. She made his fortune and laid the foundation of the greatest Jersey herd in the world. When he bought the little cow he was scientific and careful enough to test her milk, and he found that the daily yield of eleven quarts made ten pounds of butter per week, against twenty-one quarts daily of an English cow and ten and one-fourth pounds weekly. His choice of a dairy cow was then made. For forty-two years thereafter the Jerseys were the labor and love of his life. He established a herd of fifty cows so nearly alike that to sketch one was to portray all. They were solid in color, shading through all the tints of tan, fawn and gray to black points, each perfect in symmetry, "long, low and level," with graceful, high-bred carriage and gentle manners. The sale of butter alone made him rich. For years he supplied Queen Victoria's table and the London aristocracy. The time finally came, however, when, owing to domestic bereavements, failing health and advancing years, he felt he must part with his beloved Jerseys; must divide and scatter the herd it had

taken nearly half a century's care to gather together. The day came for the sale, but when it came the grief-stricken old man could not endure the pain of parting, and the order was countermanded. Again, however, he consented, and from all over Europe flocked eager buyers, and the great "Harwood Channel herd" was forever dismembered. The sire of Mary Anne of St. Lambert was from this herd. She is owned by Mr. Valency E. Fuller, of Oaklands, Ontario, Canada. Her yield of milk was 245 pounds in seven days, and this milk made 36 pounds and 14 oz. of butter. About 3 quarts of her milk, or $6\frac{1}{4}$ pounds of milk, made a pound of butter. When we reflect that it takes 25 pounds of the milk of ordinary cows to make a pound of butter, we will be able to form some idea of the excellency of this little cow. Next to the St. Lambert family the Alphas are best known. They were imported by Colonel Hoe, of printing-press fame. Bomba, Purest and Mercury are of this family. One of the latest triumphs for the Jerseys was the test of Tolteco Fancy, on the farm of Major Webster, near Columbia, Tenn. I do not personally know Mr. Webster nor Mayo Campbell Brown (who assisted in the test), but my long residence in Tennessee enables me to say that they are men of well-known veracity. The milk was set in jars 8 inches in depth and the cream $7\frac{1}{4}$ inches deep. It took less than five pounds of her milk to make a pound of butter. Her daily yield of butter, however, was only a little over 2 pounds 6 ounces.

The Dutch Belted cattle are doubtless the same stock as the Holstein-Friesians, but they form a distinct breed, with the type so finely fixed by centuries of careful breeding that their grades of even one-eighth blood retain the peculiar white belt, which is the distinguishing mark of this breed. They are not so large as the Holstein, but compare favorably with them. They are deep milkers, docile and kind in disposition, and easily kept. When dry they fatten easily, and the beef is of fine quality. They were brought from Holland to Orange County, New York, in 1838.

The Holstein-Friesian cattle are comparatively a new breed of cattle in America, though well known in Holland for over a thousand years. They are large in size, and in color black and white, and present a most attractive appearance. Holland is a country with a quality of grass hardly equaled anywhere, and with a changeable climate. These animals are bred there under favorable circumstances for fine development, and one that could easily adapt itself to any climate. A recent traveler tells of finding them flourishing in the southern part of Russia, and also meeting them in the finest condition in the northern part of that great empire. They are the hardiest and easiest acclimated of all breeds of dairy cattle. Their greatest merit, however, is in the fact that they are a combination animal—combining milk, cheese, butter and beef so successfully that they are now universally admitted to approximate nearer a "general purpose" cow than any known breed. As milkers, they stand unrivaled, hundreds of them having records from 10,000 to 20,000 lbs. of milk. Some phenomenal cows made records of 26,000 and even 30,000 lbs. of milk in one year. Peitertje 2d gave in one year 30,318 lbs. 8 ozs. of milk, which is the largest record of any cow, living or dead. Some two-year-old heifers have given 18,000 lbs. in the same time. Whole herds of cows, large herds at that, often give, on reasonable feed, an average of 15,000 lbs. of milk, and even repeat it in successive years. Their hardy constitution and great capacity for converting

food into the healthiest and most wholesome milk, seems almost unlimited under the intelligence of American dairying. For cheese the milk is of the very finest quality, containing as it does, a large per cent. of casine.

THE BOSS BUTTER RECORD.

By a note just received as we go to press, from Messrs. J. B. Dutcher & Son, of Maplecroft Stock Farm, Pawling, New York, we learn that the Holstein-Friesian cow, Pauline Paul, that had been undergoing a year's butter test under the rules of the Advanced Register, has, at the end of the eleventh month, made 1,091 lbs. 15 ozs. of butter, salted one ounce to the pound, and fit for market. This puts her ahead of all records, and with a month to spare. Up to this date the Jersey cow, Eurotisama, with 945 lbs. 9 ozs. to her credit, held the record.

These are both wonderful records, not, we venture to say, ever approximated in the native homes of the two breeds, thus showing the splendid capacity of Americans to develop the full power of the thoroughbred animal. It may not require as much patient industry and long, persistent work to do this as it does to create a breed, but the practical value of the breeds are far more grandly advanced by those who develop and get the best results from them than by those who only create the breed.

As butter cows they claim a larger number of tested 20-pounds and over per week cows than any other breed in America. Mercedes made 99 lbs. 7½ ozs. of unsalted butter in thirty days. This beats the celebrated Mary Anne of St. Lambert (Deven's) 121 lbs., and Monvese's in thirty days, Castine, 97 lbs. in the same number of days, and the old Pride of Twick 30½ lbs. in thirteen days.

The Netherland and Ægie families have been noted also for butter. Netherland Prince was valued at twenty thousand dollars by his owners, Smith and Powel, of New York. He has four daughters and one grand-daughter (two three-year-olds and three two-year-olds) whose records average 20 lbs. 8½ ozs. per week. The heifer Jamaica gave one hundred pounds of milk per day and yielded twenty-six pounds of butter in a week. As beef they have won many honors at the fat stock shows and at experimental colleges for their rapid gains of flesh, economically made, and even distribution of lean and fat, fine quality of beef and remarkable growth at early ages. As veal they far surpass all other breeds; a season's calves in many herds weighing five hundred pounds at five months of age. We have, for several years, been trying various crosses of cattle. The Jersey sire, with cows of any breed, produced small calves; milk and butter improved but beef deteriorated. Shorthorn sires, better beef but poorer milk and less of it. We are now trying crossing with a sire of the Netherland Ægie Holstein family. Can not say yet about the butter but the beef and milk points are greatly improved. The calves are strong, large and easily kept, and all partake of the Holstein characteristics, being beautifully marked black and white, strong, sturdy fellows, well formed and good bone and muscle. We had a number of calves crossed with Shorthorn and Grade Jersey, that had the same care and feed, and the Holsteins were the best without exception, making quicker growth and in better condition as to flesh, showing that they are more easily kept and can be made ready for the market at an earlier age than the other crosses.

A breed with such possibilities in every direction as this is one on which too great care can not be spent with a view to preserving those in-bred qualities.

DISCUSSION.

President Plumb. The paper is now before the house and open for discussion.

Mrs. Busick. I would like to ask Mrs. Worley if the Kerry cows were originally solid black?

Mrs. Worley. No, I think not. I believe the Kerry cows were shown at fairs in Ireland sometime during the eighth or tenth centuries.

Mrs. Busick. I remember reading in the history of the breeds that they were originally jet black.

Mr. Smith. I was just going to ask if the Kerry cow was introduced by Dexter Kerry. The Dexter Kerry is noted for the richness of its milk. I understand that the old Kerry is a great deal like the modern Shorthorn.

Mr. Smith. Do you know anything about the Dexter Kerry?

Mrs. Worley. I believe Lord Derry found the value of the Kerry cow in this way: He was short of milk cows and went to a fair to buy whatever he found that he considered suitable. The one that turned out the best was this little Kerry, and he commenced to breed from him.

President Plumb. I have an interesting statistic concerning the performance of a Holstein, which I will read; or, perhaps, Mr. Goodwin can give us the figures. I refer to the cow, Pauline Paul.

Mr. Goodwin. Yes, that Holstein cow has just made a record of some 1,153 pounds of butter in a year.

Mrs. Worley. I know of a Jersey cow which is now going in to beat that record.

Mr. Jenkins. That cow is Bisson Belle. I think she will finish about the 16th of July, and is now close on to 700 pounds of marketable butter. Another Jersey made three pounds and twelve ounces in one day to my positive knowledge, for I was there. This butter was tested chemically, and proven to contain nearly 87½ per cent. of butter fat.

President Plumb. Are there any further remarks? If not, I will announce, as far as I am able to do so at this time, the persons whom I have selected to act as dairy experts, to be recommended to the State Board of Agriculture. I will make the following appointments, of course providing that the parties will accept. Those present to-day I shall expect to decide at once, and those not here I will name, so that you may know who they are. I will state that this list will be perfected as soon as possible, and then published in the papers of the State and the Indianapolis city papers: For the Jerseys, Mr. Jenkins, Mr. H. H. Wheatcraft, and Mr. S. H. Godman.

Mr. Jenkins. Because of my position, I will be obliged to decline. I am much obliged for the compliment.

President Plumb. That is true. I had thought of Mrs. Busick, but it would be exceedingly difficult for her to be called away from home so much.

Mrs. Busick. I thank you, but I would rather not.

President Plumb. I will announce Mr. Wheatcraft, and Mr. S. H. Godman, who is a friend of this Association and intends to join us, so I feel safe in naming him. For the Holsteins, Mr. J. W. LaGrange, Mr. G. A. Stanton and Mr. Schwegler. Mr. Schwegler is a very busy man, but I hope he will be able to serve. For the milking Shorthorns, Mrs. Meredith is the only one, so far as I know, at the present time. For the Ayrshire breeders, it will be necessary to send to the Ayrshire Breeders' Association. I have read all of the names that it is possible to obtain at this time. The next thing on the programme is a paper by Mr. J. W. LaGrange, upon

THE MODERN DAIRY COW.

In this age of specialists there is nothing that is supposed to excel in more than one thing. While this is true in the main, it can not be said to be an absolute fact as yet. Still everything is tending in that direction. Success in scientific research is only attained by the specialist, who devotes all his energies to one little principle. So in agriculture and stock raising. There is nothing gained by general purpose theories. As civilization advances it makes each successful man a specialist, it matters not what position in life he holds. As in mankind so it is in those animals whose improvement has kept pace with civilization. As the farmer's work becomes more a work of brains than of brawn, science has taken hold of the farm, until to-day the special crop is sown in a specially prepared soil. Special breeds of stock for special purposes expected in all cases except the hog, and he is a hog always.

In the breeding of cattle climatic influences and the demand for different products in different classes of people has produced the different types of cattle that we have to-day. Several breeds claim to be the true beef type, while others claim superiority as dairy cows. It is interesting to note the continual strife between the dairymen as to which of their favorite breeds belongs the coveted title, "The Modern Dairy Cow."

This cow is the result of years of careful breeding, not an accident. In both Holland and the Island of Jersey, the homes of the two most prominent claimants for honors in this class, careful selections have been made for the breeding of extra dairy cows for generations, the Holland breed being the oldest known type of improved cattle. In both places and in this country, with imported stock as a foundation, intelligent breeders have produced cows that have made good the boasts of their owners by making wonderful records, the Jersey in butter and the Holstein-Freisian in both milk and butter, thus showing that man's intelligence, backed by natural laws of improvement, can produce what a few years ago was thought to be an impossibility even in this prosaic work.

But without regard to breed, race or previous condition, what must the dairy cow be and do in order to be called the model dairy animal, and that is what we are pleased to call the modern dairy cow?

In the first place, she is not the cow that makes the average yearly yield per cow in thirty-seven milk counties in New York to be 3,034 pounds, or a slight fraction over one gallon per day. Neither is it the cow of beef tendencies, which

requires a foster mother to help raise her calf. Nor is it the cow that most of the farmers of this State feed a few half-rotten nubbins in a fence corner, and then chase all around the lot in mud half boot-top deep to get a little milk from. But it is the cow that with proper care and feed will give in return enough milk and butter to leave a neat sum on the right side of the balance sheet when all is figured out at the end of the year. This being settled, the question arises: How are we to tell this cow when we see her? Will she show by her looks what she is? In the first place, every one has his ideal dairy farm, and although no two of us are likely to agree, yet there is in general a form that would satisfy most judges. She should not be a fat, sleek, round beef animal that so pleases the eye of the feeder of beef animals, but she should rather have the hind quarters very heavy in proportion to the other portion of the body, for the secretion of milk is a secondary function, nature intending it as an adjunct to the generative system. Then, those parts must be developed at the expense of the beef qualities to some extent. Then there must be in a cow of this character a great capacity for digesting and assimilating food, as indicated by a large barrel. With these we must have the narrow shoulders, thin neck, head with a wide dish face and small muzzle, in order to make up the general form of the dairy cow. Appended to this form should be an udder long, deep and broad, hung well to the back, with good, large teats placed squarely on the four corners. Leading to this udder should be long tortu-ose milk veins. I know there are some who claim that the veins should not be taken into consideration, but my experience has been that all our deep milkers, both grades and full bloods, have been supplied with very large veins, and I therefore think them a very necessary part of a good udder. And this I consider a very important part of a dairy cow, and is always the first point I examine. I always steer clear of a small, round sack, hung forward, for in all cases these are poor milkers. It don't make any difference how large or how small their digestive apparatus may be it always absorbs all the profit.

The color of the skin is another important point, although the color of the coat has a great deal to do with that, but I always like the skin about the udder and in the ear to show a yellowish tinge, as indicating a rich milker.

There are other points of minor importance, or rather I should say that if they are of much force we are not yet able to decipher them. Such points are the escutcheon, dish face, small muzzle and small, crumpled horn, long, slim tail, ending in a heavy brush. Another is the placid expression of the eye, and to this I give more importance as indicating the disposition of the cow. This brings to mind the much discussed nervous theory of Ex-Gov. Hoard. Having been twice crippled by enraged animals, I can testify from experience as to the nervousness of dairy cattle. And why not? Is not nervousness a characteristic of the very function which we develop above all others in the dairy cow. Yet there are many who ridicule the idea that are thinking men. Without entering into a scientific discussion of the subject, my experience with high-bred dairy cattle has been that they seem to be much more susceptible to kindness, and therefore resent harshness much quicker than the more phlegmatic beef cattle. As an illustration, the greatest pet I have ever had among our cattle is a very fine two-year-old heifer, which I could take almost anywhere in this building with a tow string, yet one of my men

can not do a thing with her, on account of a little rough treatment during a fit of ill temper.

Now, we have the heavy hind quarters, large barrel, narrow shoulders, slim neck, small head with wide dish face and good muzzle, a large, even udder, long, crooked milk veins, a long, slim tail with a heavy brush, a yellow skin, and with all these a nervous temperament that is, nevertheless, easily controlled by kindness, making in all a beautiful cow, and yet there is something else that is needed before all the requirements of a modern dairy cow are fulfilled. All these are only the outward signs by which we can judge only, so far, by analogy. But there is one point from which there is no appeal. When the record of a cow as a butter maker and milk producer is given, then it can be decided as to which class belong the title of the Queen of the Pail.

In the practical dairy no cow should be kept that does not yield enough of either butter or milk to make her a profitable investment, and this should always be proven by an actual test, nothing must be left to guess work. In the pure breeds the records are the marks by which the dairymen are to tell which way to breed in order to raise these cows. As a part of this question the pedigree is naturally brought forward prominently by all intelligent breeders. I know there are still many, yes, I may say the majority of the farmers of this State, who say that the feed is the breed, but the falsity of that argument has been proven long ago, and you can take the most radical, old-time farmer in any vicinity, and in pointing out his favorite milker, he will say, "Yes, she is a fine milk cow and so was her mammy before her," and yet when they want a pure-bred animal and you commence to give their pedigree, they will say that there is nothing in it whatever, forgetting that it is but an authenticated list of "mammies before them."

In these days of hurry and flurry, when every one is trying to outrun his neighbor in the race for wealth, we can not afford to wait for every heifer to grow up before we can tell whether to keep her or not. There is waste of both time and the feed we give worthless animals, so we are obliged to keep only the calves of good milkers, and the longer the line of good performers the more certain we are of good results from the heifers.

This being the case it is interesting to examine the records of cows of the different dairy breeds. Here the battle is being waged, each side starting in confident of victory and each claiming the advantage. I for one am glad to see the fight, so long as it is with good will on both sides, but it does seem as if there might be a lowering of the standard of fighting material in man to-day, when one side descends from the plane of argument and tries to gain its point by a lame joke about the cow and the pond of water. There is room for both in this wide land. So let the good work go on, for good it is, as it stimulates each side to a better care of its stock and more scientific manner of handling the products.

Thus far the strife has produced some wonderful records. Among the Jerseys we have that of Princess 2d, which is 46 pounds 12½ ounces of butter in seven days; and Oxford Kate, 39 pounds 12 ounces in the same time. Three Jersey cows have produced over 900 pounds in one year, one being 945 pounds. There are a great many which have records of 20 pounds and over. The President of the Indiana Jersey Breeders' Association, in his address this year, says that at his

request Jersey breeders sent him the test of 201 cows last year that made 14 pounds or over in one week. Of this number twenty-three made over 20 pounds of butter. I have searched long and earnestly for the average yield of some of the large Jersey herds, but I can not find them in their advertisements or their paper.

The Holstein-Friesians are equally as well off in regard to records, in fact the Holstein-Friesian breeders show a commendable spirit in this regard. They are pushing their cattle forward to the best of their ability. The largest weekly yield of this breed is 39 pounds 10½ ounces. There are quite a number that approach this closely. That of Parthena, 38 pounds 8½ ounces; DeKol 2d, 33 pounds; Garben, 32 pounds; Empress Josephine 3d, 31 pounds 2 ounces, and others; while the number that have records above 25 pounds is very large. For longer times we have 223 pounds 5½ ounces in sixty days, and 320 pounds 1½ ounces in ninety days of Clothilde 2d, and that wonderful record of Pauline Paul's of 128 pounds 13½ ounces in thirty days; 256 pounds 11 ounces in sixty days; 382 pounds 14½ ounces in ninety days; 942 pounds in nine months; 1,091 pounds in eleven months, and 1,153 pounds 15½ ounces in one year, of good, marketable butter ready to go to the customers.

But the records that to me seem of more importance and of a great deal more value in determining the standing of the breeds is the average records of some of the large herds. There is a herd of Holstein-Friesians in the United States that contains 100 cows with an average butter yield of 19 pounds per week; another with thirty-two cows with average of 19½ pounds; another of twenty cows with 21 pounds, and another with thirty-seven cows at an average of three and a-third years made an average of over 17 pounds. The records speak for themselves. They do not claim anything more than they show.

With these records before you and the dairy farm in your mind, we ask you that, without prejudice, you give each race her due, and if neither has yet produced the modern dairy cow, it is our duty both to our own pocket books and to the world, that we endeavor, with the aid of the intelligent application of scientific principles of breeding, to produce that model cow.

A bill to be presented to the Legislature, of which the following is a copy, was submitted:

AN ACT TO PREVENT DECEPTION IN THE MANUFACTURE AND SALE OF DAIRY PRODUCTS.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That no person or persons shall sell or exchange, or expose for sale, any unclean, impure, unhealthy, adulterated or unwholesome milk, or shall manufacture or offer for sale any article of food made from the same, or of cream from the same. This provision shall not apply to pure skim milk [made from milk] which is clean, pure, healthy, wholesome and unadulterated, except by skimming. Whoever violates the provisions of this section is guilty of a misdemeanor and shall be punished by a fine of not less than twenty-five nor more than two hundred dollars, or by im-

prisonment for not less than one or more than six months, or both such fine and imprisonment for the first offense, and six months imprisonment for each subsequent offense.

SEC. 2. No persons shall keep cows for the production of milk for market, or for sale or exchange, or for manufacturing the same or cream of the same, into articles of food in a crowded or unhealthy condition, or feed the cows on food that is unhealthy, or that produces impure, unhealthy, diseased or unwholesome milk. Whoever violates the provisions of this section is liable to punishment as set forth in section 1.

SEC. 3. No person or persons shall sell, supply or bring to be manufactured to any butter or cheese factory, any milk diluted with water, or any unclean, impure, unhealthy, adulterated or unwholesome milk, or milk from which any cream has been taken, or shall bring or supply milk to any butter or cheese factory that is sour. No butter or cheese factories, or creameries, except those who buy all of the milk they use, shall use for their own benefit, or allow any of their employees or any other person, to use for their own benefit any milk or the products thereof, brought to said factories without the consent of the owners thereof. Whoever violates the provisions of this section shall be guilty of a misdemeanor, and shall be punished for each offense by a fine of not less than twenty-five nor more than two hundred dollars, or not less than one, or more than six months imprisonment, or both such fine and imprisonment.

SEC. 4. No person shall manufacture, out of any oleaginous substance, or substances, or any compound of same, that are produced from adulterated milk, or of the cream from the same, any article designed to take the place of butter or cheese produced from pure, unadulterated milk, or cream of same, or shall sell or offer for sale, the same as an article of food. This provision shall not apply to pure skim milk cheese, made from pure skim milk, but whoever manufactures cheese made from pure skim milk, or consisting of a mixture of whole milk and one-half or more skim milk, shall brand such cheese in clear, legible, black letters, "skim milk cheese," both on the outer surface of the cheese itself and on the box in which it is contained. Whoever violates the provisions of this section shall be guilty of a misdemeanor, and shall be punished by a fine of not less than fifty or more than five hundred dollars, or not less than three months or more than one year's imprisonment, or both such fine and imprisonment for the first offense, and by imprisonment for one year for each subsequent offense.

SEC. 5. No person shall sell, or expose for sale in full packages, butter or cheese, branded or labelled with a false brand or label, either as to the character of the package, or the location in which it is made. Whoever violates the provisions of this section is guilty of a misdemeanor, and shall be punished by a fine of not less than twenty, or more than forty dollars, or imprisonment for not less than fifteen or more than thirty days for the first offense, and fifty dollars or thirty days imprisonment for each subsequent offense.

SEC. 6. No person shall manufacture, sell or offer for sale any condensed milk, unless same shall be put up in packages upon which shall be distinctly labeled, or stamped, the name or brand, by whom, and under which the same is made. No condensed milk shall be made or offered for sale, unless manufactured from milk

that has not had the cream removed, or unless the proportion of milk solids contained in the condensed milk shall be in amount the equivalent of twelve per centum of milk solids in crude milk, and of such solids, twenty-five per cent. shall be fat. A violation of this section shall be considered a misdemeanor, and persons committing the same shall be punished by fine of not less than fifty nor more than five hundred dollars, or by imprisonment of not more than six months, or by both such fine and imprisonment for the first offense, and by six months imprisonment for each subsequent offense.

SEC. 7. The Governor, by and with the consent of the Senate, shall appoint a Commissioner, who shall be known as the Indiana State Dairy Commissioner. He shall be a citizen of this State, and he shall hold his office for a term of two years, or until his successor is appointed, and shall receive a salary of two thousand dollars per annum and his necessary expenses incurred in the discharge of his official duties as set forth in this act. Said Commissioner shall be appointed within thirty days after the passage of this act, and shall be charged, under the direction of the Governor, with the enforcement of the various provisions thereof. Said Commissioner may be removed from office at the pleasure of the Governor, and his successor appointed as above provided for. Said Commissioner is hereby authorized and empowered to employ such expert, or practical assistance, and such agents as may be deemed, by him, necessary for the proper enforcement of the law, their compensation to be fixed by him. The said Commissioner is also empowered to employ a clerk at an annual salary of not to exceed twelve hundred dollars per annum. The sum of seven thousand dollars annually is hereby appropriated for such purposes, from any moneys in the treasury not otherwise appropriated. All charges, accounts and expenses authorized by this act shall be paid by the Treasurer of the State upon the warrant of the Comptroller. The entire expenses of said Commissioner shall not exceed the sum appropriated for the purposes of this act.

SEC. 8. It shall be the duty of the Commissioner to enforce all laws that now exist, or that may hereafter be enacted in this State regarding the production, manufacture or sale of dairy products, and personally, or by his assistants, inspect any article of milk, butter or cheese made, or that are sold within the State, which he may suspect or have reason to believe to be impure, unhealthy, adulterated or counterfeit, and to prosecute, or cause to be prosecuted any person or persons, firm or firms, corporation or corporations, engaged in the manufacture or sale of any adulterated or counterfeit dairy food.

SEC. 9. The said Commissioner and his duly appointed agents, as authorized by him, shall have either access, egress or ingress to all places of business, factories, firms, buildings, carriages, cars, vessels and cans used in the manufacture and sale of any dairy products, or imitation thereof. They shall also have the power to force open any package, can or vessel containing such articles, which may be manufactured, sold or exposed for sale in violation of the provisions of this act, and may inspect the contents thereof, and may take therefrom samples for analysis. And any person who shall obstruct the Commissioner, or any of his assistants, by refusing to allow him to enter into any place that he desires to enter in the discharge of his official duty, or who refuse to deliver to him samples of any dairy product, or

its imitation, offered or exposed for sale, when the same is requested, and when the value of the same is tendered, shall be guilty of a misdemeanor, punishable by a fine of not exceeding twenty-five dollars for the first offense, and not exceeding five hundred dollars, or less than fifty dollars, for each subsequent offense.

SEC. 10. It shall be the duty of the Prosecuting Attorney, in any county of the State, when called upon by the Commissioner or any of his authorized assistants, to render any legal assistance in his power, and to execute the laws, and prosecute all offenders against the provisions of this act. And all fines and assessments collected in any transgression, begun or caused to be begun by said Commissioner or his assistants, shall be paid into the State Treasury.

SEC. 11. All chemical analysis necessary to be made for the proper carrying out of the provisions of this act shall be made by the State Chemist, who shall charge a reasonable sum for all chemical work done under his supervision.

SEC. 12. The Commissioner shall make, by annual reports to the Legislature, not later than the 15th day of January of each session, an account of his work and proceedings; shall report in detail the number of assistants which he has employed in the form of experts, agents, clerks, etc., with their expenses and disbursements. The said Commissioner shall have a room in the capitol building, to be set apart for his use by the Capitol Commissioner.

SEC. 13. All acts, or parts of acts, conflicting with the provisions of this act, are hereby repealed.

SEC. 14. This act shall take effect, and be enforced from and after April 1, 1891.

President Plumb. The bill is one that requires our consideration, as we have done some very hard work in the same line. This bill is materially different from the one we have before the Legislature, and in itself it is quite defective. It would seem entirely unreasonable that this should be passed by the House and Senate, when we have before these bodies one that is so much more effective. I call your attention to the fact that this bill does not call for a Dairy Commissioner, and any bill of this kind, to be of any value, must have some one to enforce it. On the second page, section 4, it reads: "No person shall have in his possession any substitute, or article made in imitation or semblance of, or as a substitute for any dairy product." It is absurd, for no power but the United States Congress can prevent the use of any article in the private family. Section 5, on the same page, reads: "Any dairy products which are falsely branded, stenciled, labeled or marked as to the place where made, date of manufacture, the name or cream value thereof, composition or ingredients, or in any other respect, and cheese wholly made from skimmed milk, shall have branded upon the box or case, "Made from Skimmed Milk." If any one can explain the meaning of that section to me, I would be glad to have him do so, for I confess that I can not comprehend it. Now, it will be a very unfortunate affair if this bill gets through the Assembly without a protest.

Mr. Jenkins. I think something should be done. Would it not be a good idea for each member to write to his Representative regarding it, and in that way secure his attention?

President Plumb. It is a most important question, and we must try to supplant it by a bill that will be effective. The house is now open; is there any business to be transacted before we adjourn?

Mr. Harris. I think that, if this Association has money enough, we had better print about a thousand copies of the proceedings of this meeting in full, and distribute them to the dairymen all over the State. I move that we get bids for printing this report to the number of a thousand copies, and that the Executive Committee be directed to attend to the matter.

President Plumb. It is moved that the Executive Committee get bids on and attend to the printing of the proceedings of this meeting in full. Has it a second? The motion is seconded. Is there anything further to be said before it is put to vote? I would like to say that if you publish a thousand copies of the report, that we can get enough money from advertisements of the manufacturers of dairy utensils and other implements to nearly pay for printing, etc. And, besides, we want to put ourselves upon the records. I understand that the Secretary of the State Board of Agriculture will be pleased to place the minutes of the meeting of this Association in the State Board of Agriculture Report. It seems to me to be desirable to issue the report for our own benefit.

Secretary Bagley. I think you could get a thousand copies very cheaply, if a satisfactory arrangement can be made with the printer, although I could not say just how cheaply.

President Plumb. If this Association will get out this report, with all of these valuable papers, it will do more to interest the dairymen of the State in the Association than anything else, and it will certainly cause an increase in attendance.

Motion was put to vote and carried.

President Plumb. Is there any further business to come before the house? I have heard some talk in relation to a summer meeting of this Association; is there anything to be said upon that question? Is it considered desirable that we should have a meeting in the spring or summer?

Mr. Harris. Inasmuch as the Experiment Station at Lafayette, Ind., is interested in investigating dairy products, and inasmuch as this Dairy Association is trying to learn something, and inasmuch as we have a pretty good teacher over there, I suggest that this Association meet at Purdue University during the annual commencement, so that we, and all of the dairymen of the State, may get acquainted with the President of the college and of the Dairymen's Association, and can discuss dairy matters and be treated to a lecture over there.

President Plumb. Excuse me, Mrs. Busick, I had nearly forgotton; here is a question held over for you: "Is a barrel churn any better for being made in the State of Ohio?"

Mrs. Busick. It is not a barrel churn; it is known as the "Boss" churn. About that Ohio churn, I want to state that Ohio is a grand State. It has given us a good President, good statesmen, good financiers, good warriors, and is always on the top.

President Plumb. You have overlooked the fact that Indiana has given us a mighty good President. A bill has been presented to the Committee on Agriculture in the House and will be presented to the same committee in the Senate, as I

understand it. Senator Mount said that, with slight modifications, he believed the bill would pass. I went to see him this morning, but he was gone.

Mr. Jenkins. I move that Mrs. Busick and Prof. Plumb be delegated to look after the interests of the bill and association.

Put to a vote and carried.

Adjourned *sine die*.

CALL TO ORGANIZE.

To the Dairymen of Indiana:

GENTLEMEN—As the dairy interests of the State of Indiana at the present time represent a capital of many million dollars, and in view of the fact that these interests are rapidly growing, it would seem wise and expedient for all those persons interested in the production of milk, butter and dairy products to have their interests furthered through an effective organization, to be known as the Indiana Dairymen's Association.

Several of our sister States, through similar organizations in their respective commonwealths, are wielding great influence and good for the dairy interests. With such co-operation on the part of Indiana dairymen we see no reason why such an organization can not be made not only mutually beneficial to the dairymen of our State, but further, if properly conducted, will be highly educational in numerous directions. In view of the fact that Indiana has no such organization, the undersigned have seen fit, after due consultation, to urgently invite all dairymen of the State of Indiana who may be interested in promoting dairy interests to meet at the State House, in Indianapolis, at 11 o'clock, on January 15, 1891, for the purpose of organizing the Indiana Dairymen's Association. We trust that you will give this matter your serious consideration, and if possible be present at the meeting of the 15th.

Further, the undersigned would be pleased to hear from any persons interested in this matter, with suggestions bearing upon the same. Come one, come all.

Signed,

C. S. Plumb, Lafayette, Tippecanoe County, Indiana.

D. H. Jenkins, Indianapolis, Marion County, Indiana.

W. H. Broaddus, Connersville, Fayette County, Indiana.

Mrs. A. L. Smith, Princeton, Gibson County, Indiana.

C. B. Harris, Goshen, Elkhart County, Indiana.

Mrs. Laura D. Worley, Ellettsville, Monroe County, Indiana.

F. J. Claypool, Munroe, Delaware County, Indiana.

INDIANAPOLIS, IND., January 15, 1891.

Met pursuant to call.

On motion of Mr. Jenkins, Prof. Plumb was elected temporary chairman; Mrs. L. D. Worley, secretary.

Prof. Plumb stated the object of the meeting.

A committee was appointed to draft a constitution, consisting of Messrs. D. H. Jenkins, C. B. Harris and J. W. LaGrange.

The committee reported a Constitution and By-Laws, which were adopted, and are as follows:

ARTICLES OF ASSOCIATION OF THE INDIANA STATE DAIRYMEN'S ASSOCIATION,
ADOPTED JANUARY 15, 1891.

ARTICLE 1. The name of this Association shall be "The Indiana State Dairymen's Association."

ARTICLE 2. The officers of this Association shall consist of a President, Secretary-Treasurer and three Vice-Presidents, and an Executive Committee consisting of the President, Secretary, First Vice-President and two others elected by the Association.

ARTICLE 3. The officers shall be elected to serve for one year, or until their successors have been elected.

ARTICLE 4. The regular annual meetings occur in January at the State Board of Agriculture Rooms, at Indianapolis, Indiana.

ARTICLE 5. Any person can become a member of this Association by the payment of a fee of one dollar.

ARTICLE 6. The President shall have power to call a special meeting at such time as in his judgment the interest of the Association demands.

ARTICLE 7. The Executive Board shall have power to transact all unfinished business.

ARTICLE 8. The Treasurer shall be the custodian of all the funds belonging to the institution, and pay out the same on the order of the President.

ARTICLE 9. The officers of this Association shall perform such duties as usually devolve upon officers of similar organizations.

ARTICLE 10. These articles may be amended by a majority vote of the members of the Association present.

On motion of Mr. Jenkins, Prof. Plumb was elected by acclamation President of the Association; Mrs. L. D. Worley, Secretary and Treasurer.

On motion of Mrs. Busick, Mr. Jenkins was elected First Vice-President.

On motion of Mr. Harris, Mrs. Busick was elected Second Vice-President, and Mr. Harris, of Goshen, was elected Third Vice-President.

An Executive Committee, composed of President, First Vice-President, Secretary, Treasurer and two members, Mr. LaGrange and Mr. E. J. Howland, were elected by the Association.

A call for members was then made and responded to as follows:

CHARTER MEMBERS.

Prof. C. S. Plumb, Lafayette, Ind.; D. H. Jenkins, Indianapolis, Ind.; J. W. LaGrange, Franklin, Ind.; C. B. Harris, Goshen, Ind.; Mrs. Laura D. Worley, Ellettsville, Ind.; Chas. Van Nuys, Franklin, Ind.; Mrs. Kate M. Busick, Wabash, Ind.; G. A. Stanton, Greenwood, Ind.; Albert List, Franklin, Ind.; Sylvester Johnson, Irvington, Ind.; E. J. Howland, Howland, Ind.; Mrs. Geo. Jackson, Beech Grove, Ind.; W. H. Broadus, Connersville, Ind.; Mrs. Calvin Fletcher, Spencer, Ind.; H. H. Wheatcraft, Southport, Ind.; Geo. W. Brooks, Muncie, Ind.; L. J. Christie, Hadley, Ind.; C. T. Doan, Hadley, Ind.; Mrs. A. L. Smith, Princeton, Ind.; W. C. Wheatcraft, Greenwood, Ind.

The following additional members handed in their names on February 18, 1891:

Wm. W. Kennedy, Martinsville, Ind.; W. G. S——, Lafayette, Ind.; J. E. Isenhour, New Augusta, Ind.; Peter Covert, Franklin, Ind.; H. B. Howland, Howland, Ind.; Mrs. Virginia C. Meredith, Cambridge City, Ind.

BEE-KEEPERS.

The Eleventh Annual Meeting of the Indiana Bee-keepers' Association convened in the lecture room, State House, January 24, 1891, at 1:30 P. M., President E. H. Collins, of Carmel, in the chair.

While the audience was gathering, the Association enjoyed a general discussion on the successes and failures of the past season.

DISCUSSION.

Mr. Wilson. The past season has been a good one with me. Though during the winter it was so warm that the bees consumed a greater amount of stores than usual, and when spring came they were almost in a starving condition. Bees that were not fed did not breed up and lost all the time. During January in my neighborhood the bees were gathering pollen nearly every day; also, through February. Then we had our cold spell in March, after which they bred up, till in April my bees were strong again. There was only about two days they could work on fruit bloom, then come cold rain which cut them off. One day I found a colony of bees all laying out upon the ground and on the point of starvation. I first looked into the hive, and there was not a drop of honey; secondly, I got some water and sugar and fed it to those on the ground, and they drank of this sweetened water and revived and finally made the best hive I have had for a long time. This went on till the white clover came, and I had my bees in good shape to get a good return from the white clover, but that, too, was again cut short by the rain, and it seems that the wet weather was local; it was not general anyway. I had heard in other places that when the basswood bloom came the bees had little work on that, too, on account of the rain. I wish to speak about a plant my wife had as an ornament this season. She had quite a bunch of it, and I think on one stalk I have counted as high as fifty bees. They would fill themselves on it, and I never saw such a honey plant as that before; they worked on it all the time. I do not know the botanical name, but the ladies call it "English Live Forever." [Passes around and general remarks made upon it]. When it is in full bloom it is probably eight inches across. This has been my experience during the season. I made it profitable, and got a good return of honey.

Mr. Hicks, Indianapolis. With regard to local causes of failure for honey, I wish to say this: That in this vicinity, in and around my location, which is near the city, there was no honey in June from white clover, unless it was a day or two. I got no honey, with the exception of twenty-five pounds, from eighteen stands. I closed up with thirty colonies, and I do not think I will have half of twenty next year.

Mr. Muth, Cincinnati. My bees bred up this season perhaps earlier than ever before, and were very strong. I examined them in the middle of April, and found large quantities of brood; they were in the best condition possible for harvest. I had some other business to attend to for some time, and one day I saw quite a great many bees out of the hives, and I went through all of them and found them in a state of starvation; that was after the fruit bloom, and I had to go to feeding them on syrup made of sugar and water, and by the time I had them ready and in good condition to gather honey, the honey season was passed, and that accounts for my failure.

Mr. Catterson, Hendricks County. Mr. Muth and I agree exactly on the condition of our bees. Early in the spring my bees started in a splendid condition and I thought they were safe and no danger at all; that they would get along all right. So I did not give them any further attention for quite a while. I remember the apple bloom only lasted a few days, and after that they seemed to quit work, become lazy and did not work scarcely any. I did not think to examine them and perhaps it was a week or ten days after this, that my wife went away on a visit, and then reported to me that my friend sent me word that I had better examine my bees, as his were starving. I did so and found mine in a starving condition. Two colonies had starved to death, for the white clover season had been a poor one. About the time they began to breed up properly, the clover began to stop. Early in July we had some good rains and that started the "Heart's Ease;" there was quite a large quantity in my settlement, and I think the bees carried honey from that. I think that was about all they could get to fill up their hives with, but after all I think I did as well, or about, as I have for the past two years. I began in the spring with twenty-three colonies and increased to sixty-five, which I have yet.

Mr. Hicks. The way I feed in the winter when I get out of food at this time of the year when bees can not get out to fly, would be in this wise; make a candy of sugar and water, made very hard, so as not to melt easily, and place it where they can get to it. Bees need to be well fed, and when winter comes on, the hives should be well stocked with young brood. If brood-rearing ceases early in the fall so that the old bees are in the hives when winter begins, they will usually die before spring. Each hive should have at least twenty-five pounds of honey. Bees well cared for will come out all right in the spring and keep rearing a small amount of brood all winter.

Q. When it is necessary for you to make syrup, do you use the best sugar or not, and how do you make it?

A. I should take good sugar and make candy, such as I have described, by pouring a little water on it to melt it, and then boil a little; as soon as it is of right consistence, so a drop in cold water will mash easily between the fingers and not

crumble, pour into pie pans half an inch thick and let it cool, then break up in any desired shape that you choose.

Mr. Catterson. I was directed by a party to take fourteen pounds of sugar to one of water, but on trying I found that it did not take so much boiling as my friend speaks of, and I did not wait any length of time before dropping the syrup in the water. I had pans about an inch deep, then poured the syrup in slowly and before it became hard I took my pocket knife and cut it into such squares as I wanted. They were about four inches wide and six inches in length. I put this in the hives so the bees could get it if they wanted it. I think they had—most of them—a sufficient quantity of honey to take them through the winter.

PRESIDENT'S ADDRESS.

Ladies and Gentlemen of the Indiana State Bee-Keeper's Association:

Knowledge of the details of bee-keeping we all agree to be the first requisite of success. Many of the facts and methods may in time be discovered by each individual in his own yard. But the advantage of the experiments and success of others is immense.

Suppose an individual were to try to construct a railroad and equip it entirely from his own study and experimenting, without taking the advantage of the research and experience of others. In this age of rapid growth in all the departments of learning and of effort, no one thinks of reaching success without using every stepping stone offered by the past and present.

I speak thus because many small bee-keepers continue plodding along with the crude knowledge and awkward blunders of the empiricist, and complain that there is neither pleasure nor profit in bee culture.

If such parties would avail themselves of the knowledge already extant on the subject and attend associations where it is taught, their bees would find their way out of the weedy fence corners and into improved hives, and the honey returns would be increased under skilled management like magic.

The farmer whose field is well drained and mellow and rich is not heard complaining of either wet or drouth, bugs or frost. All these hindrances vary constantly in destructiveness, both with the farmer and the bee-keeper. But one can, by good management, ward off serious damage from one or all of these.

The past three or four seasons have been the most fraught with disappointment in bee culture of any equal number of years since this State was settled. In fact, it appears that wide-spread meteorological changes are affecting all agricultural pursuits, and that prices also have been phenomenally low.

We have produced artificial conditions which have destroyed much of our fruit and damaged our wheat crop. The very soil of the forests is noticeably harsher, less mellow and lively than fifty years ago.

These wholesale changes have seriously affected the flora. The drouth of '88 and '89 has so reduced the vitality of the white clover that though it made a fine growth last summer it did not yield honey in proportion to the flattering prospects.

The fall rains came too late, and many bees are now starving. After all this it is a fact that those who knew enough and were attentive enough to feed last spring, and come into June with very strong colonies, got paying returns.

Apiculture offers great opportunities for intelligent modification of means and methods of management; and when one tells you there is no skill in apiculture you may rightly think that that man has made so little research that he doesn't know what is to be learned.

Allow me one illustration of this thought. Last June caught many beekeepers with colonies moderately strong and with plenty of empty combs at the side of the brood, nest for storing say forty pounds of nice white clover honey, which was just beginning to come in. If you simply put on sections the bees would crowd the brood chambers with white clover honey, and the best of the season would pass before they would need the sections. This brood-comb storage would soon limit the queen in laying, and not allow the increase of brood to keep pace with the natural formation of chyle or larva-food by the colony. Both of these conditions tend to produce swarming, and, of course, to ruin the crop. Now, suppose the business-like apiarist, seeing the situation on June 1st, should spread the brood-nest, placing empty combs from the sides in the middle, also combs with hatching brood, and should remove those containing unsealed broods and eggs near the hive wall. The queen will quickly fill those central combs with brood. Your colony becomes stronger, rather than weaker, and your bees go at once to the sections to store the choicest honey.

Statistics show that the number of colonies put in winter quarters in the fall of 1889 was 108,255; the number on hand in 1890, 137,443; number of pounds of comb honey past twelve months, 936,676; number of pounds of extracted honey past twelve months, 107,714.

The exhibit at the State Fair was perhaps one of the largest and best we have had for years. I believe, with one exception, the exhibitors were all from our own State.

The display of honey-producing plants was exceedingly complete and attractive, showing careful and intelligent work, and constituting an admirable part of our entire exhibit.

The single judge system is popular, but the feeling among exhibitors was freely expressed that the judge should be one actively engaged in apiculture, or he will not be familiar with modern appliances and methods.

The matter of the part our State is to take in the apicultural display at the Columbian Exposition should claim due attention from this body. Is it not as clearly our duty to market a crop well as to produce it well? A representative exhibit at Chicago in '93 will certainly attract favorable attention from the distant markets of the world, and also increase home consumption. Men and clubs and nations gain power and character and standing in the busy world in proportion to the effort they make and the ability they show to add to the aggregate comfort and happiness of mankind. The success or failure of each private or public enterprise is the concern of all.

I thank you for your prompt and intelligent effort in making our programme full and interesting, and hope the work of the present meeting of the State Society may prove as lively and instructive as our best meetings have been in the past.

Following the address, George C. Thompson, of Southport, read a paper on—

**AN OBJECT LESSON, WITH HIVE, SHOWING HOW TO MANIPULATE
THE BROOD CHAMBER, THE HONEY BOARD AND THE
SECTION CASE, IN SECURING COMB HONEY.**

An indispensable condition to the profitable production of comb honey is strong colonies; and successful wintering is an important factor. It is very difficult to build up a weak colony into a strong one in time for the white clover, and that is the principal source of my surplus honey. Given a colony in good condition—that is, with a young, prolific queen, plenty of honey or sugar syrup, with sufficient bees to cover three or four combs of Langstroth capacity—a good, strong colony can be built up by the first of June.

I winter my bees on just as many frames as they can comfortably occupy, usually four to six, contracting with division boards, and being careful that there is plenty of food to last them until fruit bloom in the spring. Beginning with the contracted brood chamber, add empty combs—or, better, if you have them, combs filled with honey or syrup—as fast as the queen will occupy them. If the weather is warm, the added frames may be placed in the center of the brood nest, and be more quickly filled with brood; but the brood nest should never be spread in cold weather, nor enlarged beyond the capacity of the bees to cover the frames of brood. Don't "monkey" with your bees; seeing that they have plenty of food and room, let them alone. If conditions are favorable, your hive should be full of bees by the first of June, which is about the time white clover is in bloom in my latitude, and about this time, or a little earlier, they will begin to swarm. I have not succeeded in preventing swarming in working for comb honey, and am not sure it would be desirable if I could. I allow each colony to cast one swarm, and no more if I can prevent it, and what is known as the "Heddon method" has proved successful with me. Before the bees are ready to swarm, there should usually be one or more section cases, partly filled with honey, on the hive.

"When a swarm issues, hive it and place it on the stand occupied by the old colony, moving the old colony just far enough to one side to give room for the new; turning the entrance of the old colony away from the new at an angle of about forty-five degrees, remove the section case from the old colony to the new, having placed a queen, excluding honey board, on the new hive. After the new colony has its location well marked, in two or three days, turn the old one back parallel with the new. About eight days after casting a first swarm, the queen cells in the old colony will begin to hatch, and another swarm may be looked for. Two or three days before this, and at a time when the working force of the old colony is in the fields, remove the old colony to a new location, some distance from the old stand. The bees returning from the fields will unite with the new colony, increasing its working force and depleting the old colony to such an extent that, as a rule, it will not cast another swarm."

Having hived your swarm on empty frames or frames with only a narrow strip of foundation fastened to the top bar for a comb guide, and having placed the case of partly finished sections taken from the old colony upon it, the bees

will at once go to work vigorously in the sections, the comb built below being occupied by the queen with brood as fast as built in the frames. I hive my swarms on five Lungstroth frames, using division boards at the sides, thus contracting the size of the brood nest, and forcing the bees into the sections. A swarm may in this way be compelled to store all the honey they gather in sections and brought out at the end of the honey season with an almost empty brood chamber, and if no increase is wanted the colony may be united with another and the apiary reduced to the original number. If this is not desirable the brood nest may be enlarged after the white clover has ceased blooming by adding empty combs or frames filled with foundation, and the bees allowed to fill them with the fall honey for winter stores.

Let us now go back to the old colony which we removed when we placed the new swarm on its stand. Having been deprived of most of its working force by the swarm and our manipulation, it will not do much for a few days. The honey that is gathered will be stored in the cells left vacant by the hatching brood, and this will probably be continued until the young queen begins to be crowded for room, when, if the honey flow continues, a case of sections should be placed on the hive, when they will elevate the honey from the brood nest until the queen has room for her egg-laying capacity. As the honey flow begins to decrease the sections on the hives should be decreased in number so that as few may be unfinished at the end of the season as possible.

Jonas Scholl, of Lyons Station, presented the following:

ECONOMY IN BEE CULTURE.

There is perhaps no industry or pursuit that has been subject to such radical changes, such varied success and failures, as that of bee culture.

From crude beginnings and experiments has risen a business of immense proportions. The experimental stage has to a great extent been passed, and the progressive bee keeper, or the beginner, need no longer be at the expense and labor of testing uncertainties, but profiting by the results arrived at, and the information so freely given by many who have long studied the details of the business, may push forward with the assurance of success.

Without stopping to consider whether or not bee keeping is such a precarious business that the conditions for substantial progress are not so favorable as found in other occupations, I wish to point out a few facts to show that, if conducted with good judgment and strict economy, will give returns that compare favorably with other industries.

The farmer or market gardener who would succeed in his business finds it absolutely necessary to study the best methods for saving time, labor and outlay of money. Of many bee keepers it may truthfully be said that the success which attended their first efforts led them into extravagance which the business would not justify. Evidence of this may be seen about their premises. Hives of five or six different patterns, some of them, perhaps, quite expensive, after being used a short time are all discarded and thrown aside to make room for the next one that

promises wonderful results. Boxes, smokers, feeders and traps of every description, purchased or home made, are, after a few trials, stored in the loft as so much useless plunder.

This kind of business is a clear gain to the supply dealer, but a direct loss to the bee keeper, whether he be the owner of two or three colonies or of fifty.

Whenever the expenses exceed the income, the tendency is to become discouraged and neglect the business.

It is of prime importance to know what is actually necessary, and what can be dispensed with. Economy in this line does not consist in the cheapness of the article, but in the real value it is to us, and the use we make of it when purchased. The right selection of a hive is of great importance.

The Langstroth has long been acknowledged as the standard hive, and is perhaps used more extensively than any one throughout the Central States. Its many excellent points hold it in favor as far superior to scores of others that have been brought to the notice of bee keepers.

It does not come within the scope of this paper to enter into a criticism on hives in general, or to set forth the good qualities of any particular one. Yet there are some facts, which it will be well to notice.

Those who keep bees for the pay there is in it, demand a hive adapted for both winter and summer. This, we think, is found in the double-walled hive. I have known for years, and that by practical experience, that bees can be taken through winter and spring in the best possible condition in such hives. An air space of one-half inch or less around the brood chamber, is a better protection against moisture than three or four inches of chaff packing.

I use the ten-frame Langstroth as usually constructed with seven-eighth lumber for sides and bottom, and one and a half inch ends. The bottom is set in a groove one-quarter inch from the lower edge of the sides, and an outside bottom of thin lumber put on, with one-fourth inch space between the two, and closed all around.

Before nailing on the legs and strip on which the upper box rests. Cut a groove in each to exactly correspond, nail on securely and slip in from below a pannel of three-eighth inch board and fasten at upper edge.

In nailing the legs on the back end of the hive they should project one-fourth inch, and a one-half inch board fastened on with nails or screws and also grooved into the weather-strip.

The pannels, or outside boards should extend one-half inch below the bottom. The extra work on such hives need not cost over 75 cents, and does not add perceptibly to the size and very little to the weight of the hive. The extra bottom is a safeguard against dampness from the ground. With the addition of blankets over the bees and the upper story filled with dry leaves, we have in such hives the best of winter protection, and also just the hive for summer, no shade needed, as the air space all around the brood chamber prevents all danger of combs melting down.

During the last three months there has been quite a discussion in the Bee Journals on the merits of different hives for safe wintering. Some who have been advocating chaff packing as the only sure way to success, are beginning to admit

that perhaps a hive could be made less clumsy, that would, without any expensive change, meet the requirements for summer and winter. Let me quote a few lines from *Gleanings*, for November 15, 1890. On page 811 we find an article on this subject by Henry Alley, of Massachusetts, who is good authority. He says: "I may be radical on this point, yet it does seem to me, that with any good double-walled hive no packing is necessary in winter." And further on he says: "I know from past experience, that unpacked hives will not only winter better, but will come out stronger, cleaner, and better in every way in the spring." To this the editor replies in a foot note: "If we can leave out packing (I say if) and yet obtain as good results, it will be a blessing to bee keepers."

DISCUSSION.

Mr. Muth, Cincinnati. My friend, J. Scholl, is a good bee keeper. I have known him a long time. He is in favor of the double walled hive like I had some time ago. I am sure that my friend can winter his bees in double walled hives, and I am just as sure I can winter mine in single walled hives. I shall invite my friend to come and see me in the spring, and shall show him how I do.

I used to have the Chaffee hive, and I thought it was the only hive. I was like my friend Jones; thought I could not get along with the double walled hives. I have three kind of hives, the double walled, single walled and Chaffee hives. Now, then, my experience is that the single walled is as good as any other.

I know I have had my best colonies in the Chaffee hive in the winter, but in the spring my best colonies came from the single walled hives, and I defy any one to show me any stronger bees in double walled hives than I had in my single walled hives, and I think the important result in wintering is to keep your bees warm and dry, but with plenty of ventilation, and I will say that single walled are just as good as any other. My results depend merely on having soft-lined hives. Since I have them I have less trouble in wintering. One of our friends not many years ago adopted the open hives; we all laughed at him; I did, too. I preferred the closed cushion on top to protect the bees, with but a small hole for them to get out. I have found that since I have adopted the plan of keeping the entrance open entirely I have the best results, and use no more cushions next to the bees. I put three covers on top of the brood chamber to keep the brood warm, though if the cold wind strikes the covers the covers are cooled and the bees below chill.

When I once began to use the single walled and Chaffee hives, my single walled results were as good as any.

Robert Scott, of Moorefield, Indiana, who keeps bees in a bee house and warms the house artificially about every ten days, in severe weather, presented the following paper:

SOME OF THE OBSERVATIONS AND EXPERIENCES OF A SWITZERLAND COUNTY
BEE KEEPER.

Although the following lines are the result of some forty years experience in keeping bees (in connection with general farming) under the old system of box-hives, and unsatisfactory and unprofitable results, and later with the movable frame hive yielding as high as 175 to 200 pounds comb honey, and as little as 00, with prices ranging as high as 35 cents and as low as 10; from an annual crop of a few pounds to several tons, the writer has to acknowledge that he has much yet to learn, in this interesting and profitable pursuit.

One of the important questions for consideration at the commencement of this paper, and upon the proper decision of this question, much time, labor and expense would be saved, is the question: "Who should attempt to keep bees?"

From years of observation among my neighbors it is evident that there is a large class, that it would be useless to attempt bee keeping, even on a small scale. A total lack of interest in studying their natural history, coupled with a great and decided dread of the "business end of the bee," should be sufficient evidence as to who should not attempt bee keeping. This class of bee keepers usually get excited when good honey seasons come, when they see the careful bee keeper reaping such an abundant harvest with so little apparent effort, they must immediately invest in several colonies at high prices so that they too can be supplying their table, and selling a surplus of this delicious and beautiful article; to the question in the following year: "How are your bees doing?" The answer perhaps would be, "guess they are doing well enough, see them working strong." The same question in a year or two following, if they happen to be "poor" honey seasons would be, all dead; looks as if bees will not do any good for me.

While it is possible for nearly every farmer in the more favored portions of our State to have an abundance of honey for home use, and to spare, it is evident that there are some persons so constituted that it is useless for them to attempt to keep bees, even on a small scale.

Persons who naturally take an interest in bees, studying out their natural history, and the history of the floral kingdom in its connection with the production of honey. Such persons having sufficient energy, patience and perseverance to go through seasons of scarcity of honey, and loss of bees occasioned by long and severe winters, may well engage more or less extensively in bee culture, the extent to which a person can profitably engage depending on the pasturage natural and artificial.

A person surrounded more or less abundantly with fruit trees—apples, cherries, plums, and small fruits—raspberries, blackberries, etc., and our natural forest, especially the different species of willows, maples, locust and most important of all bass wood; while the first named trees and plants are good in their season for pollen and honey for the production of surplus, saleable honey bass wood seems to be of more value than any or all of the rest combined; these supplemented with the ever present white clover, also alsike and red clover; the person so surrounded may well consider himself favorably situated for keeping bees on a somewhat extensive scale.

HIVES.

Another matter of great importance in keeping bees is the selection of a good hive to begin with, and after making that selection have no other. Although my experience has been with side-storing hives, yet, taking the average and poor seasons, I have reason to believe that hives made for top-storing would be my choice if commencing anew. My notion now is, that hive is best that can be enlarged indefinitely for surplus honey in our extra good years, yet not too large in poor seasons.

SWARMING.

With a hive so constructed with means for abundant ventilation as the weather grows warm and settled, the vigilant bee keeper can almost wholly prevent swarming, which we must do if we make the most from our bees. For the last eighteen years I have aimed to prevent natural swarming altogether, working for surplus honey during the honey season, making the increase by division after the honey harvest is over; my success in preventing natural swarming depending wholly on my vigilance in giving the proper amount of ventilation at the right time, and room for surplus. In my opinion, being able largely to control natural swarming is one of the most important points in profitable bee keeping. A spreading out and scattering of the working force, by putting in empty frames, is of prime importance in preventing swarming. I need not remind the experienced bee keeper that the extent that this should be done depends on the strength of the colony, flow of honey, and the season of the year.

The above precautions against swarming can very easily be overdone to the loss of the bee keeper. The extent of the spreading of the working force on the combs at which they are at work, and amount of ventilation at the time, depending on good sense and judgment of the bee keeper.

Notwithstanding all precautions, in seasons of scarcity of honey and showery weather, some colonies seem to have a determination to have their own way, but by the above precautions swarms can be reduced to a very small number.

WINTERING BEES.

The first necessity under any system of wintering is to have the hive well supplied with plenty of bees, a good quality of honey, or sugar syrup (preferably the later, as then you know just the quality). Unless you have good reason to know that your hive contains little else than clover or bass wood honey, you run an additional amount of risk if you do not throw it out and supply its place with good sugar syrup, more especially if the winter should prove a severe one, and the bees not have a chance to take a fly at frequent intervals. A hive plentifully supplied as above, with a good article, and a sufficient number of thicknesses of woolen cloths on top to retain the animal heat, with three or four sticks across the frames to allow the bees to pass from one frame to another, is well equipped for any ordinary winter, if they get no other assistance. My experience has been in wintering in pits (twenty-four years ago), cellar, summer stands and in bee house.

The first mentioned plan in pit was abandoned after first trial, not being at all satisfactory; cellar-wintering I followed for several years, with reasonably good results, but several warm, open winters passed and had trouble again, bees becoming restless and flying out on the cellar floor, so I quit putting in cellar. I am convinced from several years' experience in cellar-wintering, that if we live far enough north to insure steady cold, or would use some artificial means to keep down the temperature through a warm spell of weather, there is no better or safer mode of wintering than in a properly constructed cellar. Like all the rest of animal creation, the more comfortable they are kept, the less they will eat, and as a result the more profit to the owner.

For the last several years, or since I got discouraged putting in cellar on account of mild winters, have wintered most of my bees (about 100 colonies) on their summer stands, and when properly fed and clothed as stated, have had but little loss.

WINTERING IN BEE-HOUSE AND BY ARTIFICIAL HEAT.

During the fall of 1871, I built what is known as the "Faulkner's improvement in Apiary." A brief description would be, it is built any length desired, about 10 feet wide, the height inside depending on the number of shelves on which you want to put hives, the house stands on a sufficient number of iron pins, inserted in sill, the other end in iron cup for tar or other substance to keep out ants. The building itself is built like an ice-house, four to six inches sawdust on the sides, foot to fifteen inches above and between floors; double doors and windows, in the ends, as convenient; holes cut through the side of building at proper distances for the hives, each hive having broad alighting boards, extending twelve or fifteen inches out and up to bottom of hive; use any style of hive desired, top or side storing. At space cut through the floor and a ventilator up through the roof for summer ventilation.

Small stove with four-inch pipe extending up through the roof for warming up the house during long-continued cold and damp weather is a necessary piece of furniture to this bee-house. Have had the best of success with this mode of wintering, when the other proper conditions of wintering were attended to. A house built after this plan is perfectly dry at all times, which is a matter of first importance in safely wintering bees, the hives being always in place saves handling, and the bee keeper is prepared for a warm or cold winter. If long continued cold, and the bees have likely consumed all stores within reach of their cluster, fire up quietly and gradually until you get to about 60 to 75 degrees, holding the temperature well up to that point for twenty-four to thirty-six hours, giving the bees time to change their cluster, and the comb and honey get warmed up so the bees can uncap and move the honey, if it suits their plans. The question might be asked; "Do the bees not become restless and fly out of the hive, when the temperature is at 75 degrees?" I should have stated that the hives on the inside of the building should be bee-tight, and all light excluded, the entrance on the outside is left open at all times, the bees will crawl to the entrance but finding it too cool for out door

traveling, they retreat to warmer quarters. A healthy bee will not fly out, during the warming up process, unless the weather is somewhat suitable.

In the early spring, when heat is so essential for rapid brooding, the heat thrown off by the strong colonies is retained in the room for the benefit of the *weaker colonies*, and if cool weather continues for several days after a warm spell in the spring, a little fire in the stove will keep up the temperature, and tide over a cool spell, preventing a destruction eggs and larvæ, the bees being able, with a little help from the fire, to keep up the necessary temperature for brooding. When it is desirable to examine the hives for any purpose during the season, especially when there is a scarcity of honey in flowers, and bees are cross, you can go into this house, have your doors and screens properly arranged, and work at your leisure without being disturbed by robbers.

The *number* of times and the *proper time* to warm up this building depends, of course, on the *severity* of the cold and its *duration*. A winter like the last, when the bees were able to be out at short intervals, would need but few warmings. Although I have had very good success with keeping bees in this house, both summer and winter, I am not prepared to recommend it for general adoption, but only to those who will *perseveringly attend* to all the little *details* of bee keeping. For instance, many persons keeping poultry in their rough and primitive way are more successful than they would be in the most carefully constructed poultry-house.

Walter S. Pouder, of Indianapolis, presented the following address on

MANAGEMENT FOR EXTRACTED HONEY.

Many people demand comb honey because of its handsome appearance on the table, and again because, in their opinion, it is the only pure honey. In managing bees for comb honey there is certainly vast room for improvement, and while there is still room for improvement in managing for extracted honey, it has been reduced to a more complete science. A good queen and proper spring management are the main factors, to be followed by a good honey flow, and a pity it is that we can not control the latter!

If we could accurately predict on these honey seasons we could build up accordingly, but how can we foretell? No one knows but the man in the moon, and he refuses to be interviewed. Dr. Miller can answer the question, but his answer will be: "I don't know." Last season opened very promising, but the promise was one with a string tied to it. Then let us build up strong and predict a good honey season, for there is something about these predictions that kindles one's imagination into pleasant dreams.

For years I was an enthusiast on the subject of spreading the brood, but that enthusiasm has died away, and now it is my positive opinion that the bees will enlarge their brood nest as rapidly as their abilities will permit, but it is our important duty to see that the brood nest is surrounded by an abundance of stores.

When the brood chamber begins to crowd, which will come about when there are seven to nine combs of brood, we should simply add an upper story of ten brood combs. These conditions will come about before the honey season has fairly

begun, and the brood nest will be extended into the upper box. We shall want just as much brood as we can possibly get up till about the 25th of May, when we shall lift off the upper box, see that the queen is safe in the lower chamber, add a wood-zinc honey board with an accurate bee space on one side—the only honey board that I would use in my own yard—and then return the extra box. After an elapse of a week we can extract without danger of throwing the board from the cells.

Colonies built up on this plan will become exceedingly strong, and we may have occasion to add an extra box of ten brood combs; I have even been obliged to build a few of them four stories high. I have practiced this method for several years in a yard of fifty colonies without a single natural swarm.

The best results with the extractor are obtained after we have a good supply of combs. A full sheet of foundation will make the most beautiful comb, but is rather tender for the extractor, therefore we must reserve as many of the tough combs from the brood chamber as possible and place frames of foundation in their stead, but if we are not careful the bees will make crooked combs from foundation. We must place full sheets in the cluster, where an equal force can work on either side. One year's use for brood puts them in proper condition for the extractor. To have combs touch the bottom bar is certainly very desirable, and is best accomplished by trimming off the lower edge and then fit in a strip of comb. Patches of drone comb can be replaced with worker comb in the same manner, but these repaired combs must be given to the bees at a time when honey is coming in.

Now, if all the amateurs and experts (?) would learn to extract at the proper time—that is, when the honey is thoroughly ripened—there would be a demand for extracted honey that would exceed the present good demand for comb honey. One of our city editors asks why extracted honey is not as good as the honey that drips from the comb in a dish. One of our druggists complains that he purchased a can of extracted honey from a farmer and it soured. It is difficult for a beginner to know just when the proper time is to extract, because the seasons vary. At times it is sufficiently ripe without capping, and again it is unsafe to extract before it is thoroughly capped. My test in this matter has been in shaking the bees from the combs; if I could shake any honey from the comb in the form of a spray I would return that comb to the hive at once. With a new extractor, good, moveable frame hives, straight combs, queen-excluding honey boards, a solar wax extractor for an uncapping can, Italian bees and a complete outfit of handy implements, it is not surprising that the amateur wants to turn that extractor! Still, there are many that will not take hold of the implements that have reduced bee keeping to a science. They will not read our excellent bee journals, but still cling to the box hives and hybrids, and in turn the hybrids cling to them.

Hon. Albert G. Porter, ex-Governor of Indiana, at present United States Minister to Italy, communicated the following by letter to the Convention :

ITALIAN BEES AND PROPER MODE OF SHIPMENT.

The Italian bee is one of the sub-races of the bee spread over all the five parts of the earth, known by ancient naturalists under the name of the honey bee. Another sub-race, and the most diffused, is the "Nordica," or German, generally cultivated in America. The Italian bee is distinguished from the latter by its coat, which is much more comely, because while the coat of the German bee has a color unit which varies from a clear gray to a dull gray, approaching nearly to a black, the first three rings of the abdomen of the Italian bee are adorned with a golden yellow, which gives to them a most attractive aspect. But for activity and vivacity, also, not less than for beauty of the coat, the Italian bee is distinguished among its sister sub-races, and its gentleness is proverbial. It is also less inclined to needless swarming, and it has the well-merited fame of indomitable courage in repelling the attacks of its enemies. It is for these commendable qualities, but above all for its gentleness, that the Italian bee is, more than others, esteemed and sought for by apiculturists of other nations. The bee of Carniola is also of a good disposition, but it does not possess the other virtues of our bee, and if the bee of the island of Cyprus excels it for beauty of coloring, and is also perhaps not less indefatigable as a gatherer, it is so irascible and aggressive as to become almost unmanageable.

The Italian bee has been more than thirty years introduced and acclimated in America, and there they have apiculturists who have an extensive trade in Italian bees by them hived. It happens to be difficult, however, to maintain pure the Italian race of bees in the midst of bees of diverse race, for the reason that the fecundation of the young queens takes place outside of the hive in the air, and probably at considerable distance from the habitation, from which it naturally occurs that the Italian queen, in nuptial soaring, meets a German male, and from the meeting results a product of the crossing. It is this circumstance that renders necessary a continuing exportation abroad of the Italian bee.

In shipping it is sufficient to send one queen with a certain number of working bees, according to usage. The queen arriving at destination, and introduced with due precautions, well known to every bee-culturist, in a hive of bees of the country to which she is taken and from which the mother bee has been previously removed, continues to deposit eggs from previous fecundation, from which are produced, exclusively, Italian bees, it being true that the one copulation from the male that has taken place a few days after her birth, is sufficient to render her fecund for all her life.

Every queen is sent separately from other queens, and with a good number of accompanying bees, in a suitable, small box, provided with large apertures for abundant ventilation of the interior. The apertures are made in the sides and bottom of the box and are furnished with a metallic cloth. Two small shelves attached in the interior, and well secured in order that they may not be displaced, much less, fall; contain the food consisting of small, old honey-combs, old because more resisting, replenished by honey enclosed by the bees in the cells, with the ordinary stratum of wax, or, what are to be preferred for long journeys, little tablets prepared with a very fine cane sugar kneaded with a little liquid honey let into the

shelves between two pieces of metallic cloth. In this case the cloth on one side must be distant about the width of about a centimeter (39-100 of an inch) from the back of the shelf. In order to permit the bees to enter there and carry away the remainder of the food, to which they might not be able to reach with the tongue through the net-work of the metallic cloth. The necessary water is contained in the honey or the paste of sugar, but it would be nevertheless, not a useless precaution to apply in the lower part and opposite to the aperture of ventilation, a little piece of sponge, where one might have some person during the journey who could wet it from time to time with a spoonful of sweetened water.

It may be added that the shipping is taken charge of by the sellers, each one of whom has his own particular mode of packing.

The dispatch of queen bees, and also of entire hives, to America, to be carried a long distance there inland at a time when severe cold weather might reasonably be expected, would not present the probability of a happy arrival. The body of the bee, as that of all insects, possesses only that specific heat which is called animal heat, and of which the principal source is respiration, and it is only owing to the union and close agglomeration of a great number of individuals that a family of bees may produce in a suitable environment a temperature which in the center of the agglomeration (mass) shall not be less than $+ 10^{\circ}$ centigrade, yet the exterior descend to 20 and more degrees centigrade below the freezing point. In a long journey, however, the bees would not be able to enjoy the rest necessary, and the continual and unavoidable shaking would have, as a consequence, the loosening of the agglomeration, and the single bees must naturally grow stiff with cold.

Under favorable conditions, one queen with her accompaniment, or an entire family, may journey thirty and more days by land and sea. Nevertheless, it would be a hazardous thing to guarantee, in such journeys, a happy arrival.

As to the lowest temperature which the bee may support, it has been observed that at $+ 6^{\circ}$ centigrade it no longer flies; that if the temperature continues to descend it grows stiff, and continuing in a lethargic state it dies. Degrees of cold kill single bees in a brief time, whereas, in a union of at least 20,000 individuals (the numerical force of one normal family in the late autumn) well-kept and remote from any disturbance, they may support the rigors of a winter in the United States.

R. S. Russell, of Zionsville, read the following paper on

HOW FAR CAN THE "LET ALONE" POLICY BE CARRIED WITH FAIR SUCCESS IN
HANDLING BEES?

It is an admitted fact that bees require a certain amount of care and manipulation, while it is equally true that two-thirds of the mortality of recent years and bad luck (as some call it) may be directly traced to the tinkerer's and fusser's door, or the hopeless, careless man. Hence the subject of this essay.

After some reflection, I conclude that, owing to the different climates and various seasons, and the difference in natural locations, and the different characteristics in bees and bee keepers, that no general rule will hold good. For example, the wintering problem. For Canada and the Northern States small hives and

good cellars are safest; for our own latitude large hives on the summer stands, with a little extra packing, is just right; while in the Southern States the "let alone" theory is as good as any. These three rules are very nearly right; but if reversed in position, all wrong, and not one being satisfactory. It seems that the different manipulations made necessary for successful wintering also make a strong demand for different tactics in spring management, for while the northern bee, fresh from the cellar, is wrestling and dwindling with foul-brood diarrhea and other caustic diseases and not able to eat, our bees are blest with good appetites and many starving to death for something to eat; while the southern bee, I am led to believe, is in about her best harvest. I have never doubted the positive assertions of bee keepers in this latitude, that a few pounds of honey per colony were saved by cellar wintering, yet I have always maintained that it was saved at the expense of many pounds in the general round up. Some strains of bees are better adapted to one location than another. The Brown German is very hardy, a good comb-builder, and is perhaps better adapted for bass wood, white clover, buckwheat, and as general scavengers of small flowers in the north and south than any variety; while in our climate, with its countless acres of red clover as the only resource in a dry season, she is compelled to fall back to about third or fourth position, with the beautiful Italian, with his long tongue and indomitable courage, away to the front. While I fully agree that a certain amount of manipulation is necessary in the apiary, I can conceive of nothing more barbarous or cruel, or that would cause so much discouragement to a household as the ruthless invasion of the parlor or brood chamber, disarranging all the house and perhaps carrying away part of the family, or upsetting the entire house every few days, or taking the food right from the mouths of the children and tearing the finely constructed brood-nest apart and inserting frames, perhaps empty, called by wise ones "spreading the brood or dividing a prosperous colony for increase," all this fussing is unnatural and inhuman, and we say don't do it, brother, or you will have bad luck. Better practice the "let-alone" theory. But, says Mr. Tinker, "Mr. Know-all told me how to work my bees, but they all died, and so did Mr. Let-alone's, and he had his in box hives and didn't touch 'em only to cut some honey out of the tops. His all s armed three times apiece, but they went to the woods. His were black bees, and, Great Caesar, you ought to seen the wrath in 'em! I tell you, bee keeping won't pay in this country." Now, this is about the verdict of both classes of thoughtless extremists, and they seldom succeed better in other business. But, thanks, to the Great Creator of the industrious and useful little honey bee, He has also created another class of reasoning and charitable men and women who recognize bees at once as their true friend and most useful servant. This class are rapidly increasing in numbers and becoming more successful year after year and from every part of the globe. This great class are declaring that bee keeping is a success. But just how far from the "let-alone" theory have they digressed? 1st. It is a well known fact that bees degenerate to scrubs equally as fast as other stock by the "let-alone" theory, and there is no money in rearing scrub stock. So it is very necessary that we keep our breeding stock up to the highest standard. This can be done by using only the very best queens and drones as our brood stock. To do this we must adopt hives with movable frames, so we chose a ten-frame Langstrath

as our hive and eight colonies of bees—six are black and two are very fine Italians—and we select them for brood hives at once. In early spring we commence our theory by a careful examination of all the brood chambers, removing all the drone comb from the blacks and clip all the queens. Insert the evaporator chaff cushion on north side. This is neatly covered with fine screen wire and allowed to remain in hive both winter and summer.

This is now a perfect brood-nest, containing nine frames, a perfect non-swarmers, and should never be molested save to clip a queen or introduce one, is perfectly adapted for either cap or extracted honey, no honey-brood or queen-excluders, or contracting or fussing is ever necessary, but plenty of room must be provided for surplus during the honey season, after which the surplus is removed and the chaff-zinc replaced, and they are all O. K. for winter. The two-brood hives are allowed one frame of drone-comb each, placed on the south side of the brood chamber half way from the center. It is warmly packed, and it is only necessary that they have plenty of stores, and they will swarm and have plenty of drones as soon as you will need them. No surplus cases are used on these. The swarms will issue early. Cage the old queen and remove the old stand to a new location. Hive the swarm in the old location, using only starters one inch wide in the frames, with the hive perfectly level. One week later add a super from another colony containing partly-filled sections, with or without bees, and the work will all go on just right. Six days later four divisions more are made of the broad brood-hives, one or two queen-cells in each nucleus, dividing the young bees about equally, and, behold, in a few days you will have a litter of as fine queens as any one can ever get, and in a few days all will be properly fertilized by drones of your own selection.

Such queens are almost invaluable, as you know just what you are cultivating. Should your black bees swarm, it is only necessary to exchange one comb and give the old hive a comb containing a fine queen and a full cabinet. You will have no after-swarm from that hive if you only give it surplus room and ventilation. Other queens are ready for use any time through the swarming season. When the balance left are given to most objectionable stock of the apiary, any bees left from the nucleus are united with the weakest colony. This theory is probably the best adapted to farmers of any that could possibly be suggested, and is always attended with both pleasure and profit, but if your neighbor is raising bees in the old hap-hazard way, you must convert him or buy his bees. Also, bee-trees are not very desirable if near your apiary, as many of them contain thousands of worthless, prowling drones that are worse than sheep-killing dogs to our bee-keeping interests, or so far as improving our stock is concerned. So much have I been vexed by them that I would freely pray our present Legislature to pay one dollar bounty to bee-hunters for capturing them, and make it not a trespass to hunt and capture them.

The Convention, on motion, adjourned *sine die*.

CANE GROWERS.

The ninth annual meeting of the Indiana Cane Growers' Association convened January 13, 1891, at 1:30 P. M., in the lecture room of the State Board of Agriculture, State House, President W. F. Leitzman, of Clayton, in the chair.

Secretary Chapman being absent, on motion of Mr. Nicholson, N. B. Dewey, of Cicero, was elected Secretary *pro tem*.

Prayer was offered by W. L. Anderson, of Ladoga.

A. P. Cleland, of Macy, Ind., submitted the following paper on

DEFECATION.

I now start out to give you what I have learned by different methods of defecation of sorghum juice, which is as follows: First was on a fire pan, holding fifty gallons of juice. It was treated with lime, boiled and skimmed, and allowed time to settle. Drawn off and treated with bisulphate, and evaporated in an ordinary evaporator, an improvement on the Cook evaporator. The product was a dark-colored syrup, having a slight bitter taste, and was pronounced very good by some, but it did not suit me, as putting bisulphate of lime in hot juice will do much good, for the gas that is in it evaporates too soon.

Next I tried continual defecation on a fire pan; the juice was treated first with bisulphate while cold and with lime just before evaporation; the defecator was 3x10 feet with a cover 3x6 feet like a paper box lid fitting down close and open at each end; this drove the impurities out into an offset prepared for it, where it was removed with very little difficulty; there was attached to this defecator an open evaporator on the same fire 3x14 feet to finish boiling the juice to molasses; the juice run in a continual stream into this defecator and was kept boiling until finished, all by the same fire, and it made a very bright, light-colored molasses of a good flavor, and had less of the green color contained in sorghum. I also tried defecation by steam, and then run the juice through the continual defecator; the result was a dark-colored syrup. I have tried steam evaporation, and have examined steam evaporated syrup and have found none to compare with the Pallace Continual Defecator and finisher; and other men will tell you the same that have examined my syrup. Now, you need not take my word for this, but go among the farmers that I manufacture for and ask them and they will tell you the same; I have made by this method for the last three years, and I have guaranteed every

man good molasses that hauled cane to me and have not had any brought back. Have had some complaint from molasses put in sour barrels. I do not guarantee molasses if I have to put it in vinegar barrels.

By this method a half cord of wood will produce one hundred gallons of molasses. In making 5,000 gallons by this method you will get about two-thirds of a barrel of foam and by the old method you will get six or seven barrels of foam, and the grocers say it is dangerous to ship sorghum in warm weather on account of its working. But I can ship syrup made by this method any time of year with perfect safety, and it is no use for me to try to supply the demand. Now, what we need is more factories to make sorghum by this method; it will bring 10 cents more where it is known than sorghum made without chemicals. Now, I can instruct anyone how to use chemicals with perfect safety, so they can make their molasses all just like those samples on the table, and even better than them if a good season for cane.

DISCUSSION.

W. L. Anderson. I wish to ask the gentleman what he means by "defecation;" he speaks of boiling down, is that what he means?"

A. P. Cleland. Defecation means to purify. You can't heat cane juice without an evaporating process.

C. B. Nicholson. I thought of the same thing you spoke of: Defecation in the finishing pan, do you call it defecation before it is finished? In the last division of the box after it has been partially purified, begin defecating there until finished.

N. B. Dewey, Cicero. I defecate with chemicals, such as lime, and purify from the time I begin to evaporate by chemical process, but defecation without chemicals is the process of boiling down.

Mr. Anderson. He speaks of being troubled with foam sometimes, and at other times not. Do I understand that this foam is on the surface of the syrup?

Mr. Cleland. When I use chemicals in the molasses tank I have but little foam, but when I use none, I have so much foam I don't know what to do with it.

Mr. Anderson. I used to be troubled with my stirring pan; I now use a pan where I can put about 400 gallons of foam, and I use more chemicals than Mr. Cleland.

D. H. Talbert, Spiceland. I suppose we have representatives from both sides of the defecation question. I do not believe in it, because I can give as good satisfaction without it as those who practice it. As to this foam on molasses, it is disposed of by cooling down before pouring in the stirring tank. If it is hot there is considerable air in it and causes foam to rise in the cooler. I would not advise tampering with chemicals, especially a young man in the business.

Mr. Hill. Does the gentleman use chemicals all the time? Is there not some cane where the use of chemicals is not necessary.

Mr. Cleland. There are a few cases where we can make good molasses without the use of chemicals, but I have had to sell the molasses for ten or fifteen cents less on the gallon.

Mr. McQuisten. You can use lime to good advantage, if you don't use too much, but a new beginner should be cautious in that respect. If you use too much

lime it makes the color of the molasses dark; I have been engaged in the manufacture of sorghum molasses for twenty-seven years and I find the safest plan is not to use lime, as it has a tendency to cause it to granulate, but if your cane is frosted it is necessary sometimes to use a little.

Geo. Symonds, Sheridan. The question was asked a few years ago, if there was anything to prevent syrup from turning to sugar? It was thought there was no way, except by the use of poisonous acids; if lime will do it, that is better. I have been working at the business for several years and experimenting with chemicals. If the ground on which the sorghum is raised is of a sandy nature, with lime in it, there is no need of using chemicals, but if your ground is of a marshy or gummy nature, it will require some lime to purify; cold lime-water is best, it gives a better flavor than anything I have tried.

Chair. At what stage do you use water?

Mr. Symonds. Sometimes I have to use it from the first until done. If it occurs in my first pan, there is where I put it. If I anticipate a bad job, I start in with cool water, letting the juice come in with it.

Mr. Pope. Did you say lime-water?

Chair. All kinds of water is useful.

Mr. Field. We find no advantage to have water, the stronger the syrup the nicer the molasses, where water is added it requires more boiling and the molasses is not so good. Keep it thin on the evaporator and the quicker you get it into molasses without scorching the better.

C. B. Nicholson, Clayton. I coincide with the remarks of Mr. Talbert; I do not believe in the use of chemicals, and do not use them in my factory, yet I can sell my molasses as high as Mr. McClelland. The demand for my molasses this year was so great that I was unable to fill but about one-third of my orders, and year before last I was far behind. If we can do as well without the use of chemicals, what is the use of using them. I would especially caution new beginners in this respect. If a man understands his business, he may, perhaps, with some propriety, experiment, but nine times out of ten he will make a mistake. Let heat do the defecating, use the skimmer handle, pay close attention to business, and there is nothing to hinder making good molasses.

Mr. Clelland. I have established several factories in different parts of the country, and instructed them to use these chemicals. Where I have started such factories other sorghum factories discontinue. I would like to ask this Association why this is so?

Mr. Nicholson. Those men you started in business have an aptitude in making sorghum, and make a success with chemicals. I know men not far from me who do not use chemicals and make a failure; the reason is, they don't understand their business. No difference what a man goes at, he must understand his business and pay close attention.

Edwin Berry, Westfield. I have been in the habit of using chemicals, and quite successfully, however, this year when the molasses was nearly thick enough it seemed to jell. I wish to ask McClelland if he has experienced any difficulty in that way after going through this process?

Mr. Cleland. All of us have had some trouble this season on account of wet weather.

Mr. Nicholson. A little hog's lard dropped in each batch will remedy it.

Mr. McQuisten. This gummy jell stays in the molasses after made. What you have reference to, sticks to the pan; a little butter or lard will prevent it. The reason that Mr. Cleland gets along so well is because his evaporator is right.

Mr. Cleland. I use butter or lard all the time.

Mr. Field. There is a kind of white lime which sticks to the evaporator, that grease keeps it from adhering to the pan.

Mr. Anderson. Mr. Field is talking about result from second growth in cane; the others are talking of another difficulty, because chemicals always remove that kind. Where the cane has a second growth, the impurity of the cane will cause the syrup to jell and become unmarketable. I am anxious to know if a remedy can be given for impurity of cane.

Mr. Dewey. This settles to the pan and the jell of the molasses, after it is taken off, is clabbery and unmarketable. Sticking to the pan don't bother us. What will take these impurities out, is the question?

Mr. Nicholson. I think I understood what I undertook to answer about clabbery jell; it will jell in the pan before cold, before we cease cooking, it is borne to the bottom of the pan. Second growth is what Mr. Cleland speaks of. All it lacks is thorough cooking. Unless you add grease you think it is done, when it is not done and clabbers.

Mr. Anderson. I understand the gentleman to say we do not finish our syrup. I have an instrument to test when it is done. I come down to the same degree in the hydrometer, and have every indication that the syrup is done, for in my process I can boil as low as I want. It seems to me that what is added, let it be butter or grease, must cast out impurities. I wish to ask if anything is cast out? If it don't, how does he explain this remedy?

Mr. Nicholson. I very often add this before the syrup is done, and invariably it will throw up a green scum. Before this the scum is white, but after you add this the scum is green. It will increase the evaporation tenfold by the same heat. If you finish by the hydrometer with the gum in it, it will give you a false indication as to what is being done, where if you add grease you put a correct scale on whatever you finish up.

Mr. Merritt. It is on account of the ripeness of the cane. In that state no kind of chemicals will preserve it, because it is too ripe. There will be jell in spite of you, and you can't cook it like it should be.

Mr. Berry. If we put a little pure sugar, say two pounds to ten gallons of molasses, and boil a little might to give it body.

Mr. McQuisten. I had two barrels I could not sell. I put lime water with it in a large box, and let it stand until morning, then run it through the evaporator. You would be surprised at the impurities removed, and it made good molasses afterwards.

"ADULTERATION OF FOODS."

BY HON. J. B. CONNER, OF THE INDIANA FARMER.

The one principal point which Dr. Pearce excluded was the matter of using less animal foods and fats. Statistics will bear me out in the remark where the lighter foods, such as syrups, have taken the place of fats and come into general use, there has been a tendency towards a higher civilization. It is one of the things that has been going on and toning up the civilization of the world, and I was greatly pleased with the whole discussion of the doctor on this subject. In regard to the matter assigned to me, Mr. President and gentlemen, that of "Adulteration of Foods," there has been so much discussion in the last few years in the press and elsewhere that there can be but little said; indeed, I have made no preparation in the matter of a paper, and will present only a few thoughts in a verbal way. The State Legislature has, for the past twenty years, been dealing with the adulteration of foods and other adulterations of medicine, and have passed many laws directing penalties on various things. These acts of the Legislature became laws in twenty States. These States have of course accomplished something in the way of calling attention to the importance of a general law on the subject. The State acts could not accomplish the purpose, yet many of these have been in force, and been valuable to awaken public attention to it, until the Congress of the United States has taken up this subject, and it is to that body we must look more than anything else to effect legislation. Under the recent decision of the Supreme Court one State might construct laws as to food adulteration, and another State might send packages into that State and sell under that law. You remember the United States law regarding the "Original Package," and the dissatisfaction arising from it.

There are now two bills being discussed before Congress. One is what is called the "Conger Bill," relating to compound lard. You know since discovering that cotton-seed oil might be utilized for food it has been used to make an adulterated compound article of lard. Compound lard is made largely in the north, and the northern houses control the out-put of the cotton-seed oil. Houses in Chicago use thousands of barrels to put in their lard. This bill is directed against that lard. The public is entitled to know whether they are buying pure lard or compound. The Conger bill has directed that compound lard shall be sold for what it is. The sections producing cotton-seed oil and lard are divided in opinion on this subject—the southern men are opposed to it to a man, because it will cut off their source of income, while the northern men are favorable to the Conger bill.

There is another bill before Congress, called the Paddy bill, that is more general in its character. While it does not take hold of this question in specific terms, it is taking hold of all kinds of food. It is generally thought that the Paddy bill should become a law, as there is no doubt of the necessity of this kind

of legislation. It is said everywhere there is need of legislation to prevent the adulteration of foods, and all the propriety is certainly conceded. The first legislation on this question, you will remember, was on oleomargarine, or butter imitation, that awakened such a storm of opposition. This bill provided that compound butters should be labeled and sold as such. This kind of legislation became general in many States, awakening a general thought and interest, until Congress took hold of it, you remember, two years ago, and passed a law which is still in existence. This question of adulteration of foods is now taken hold of by Congress, and, doubtless, one or the other of those bills may become laws, and certainly the propriety can not be questioned.

DISCUSSION.

Dr. Perce. The question of adulteration of foods is claiming much attention. I do not want to infringe upon the methods and practices of some of our wholesale men, but I am informed that they take one barrell of sorghum and make three out of it; if this is done, it is adulteration, and should not be permitted. As to this lard bill spoken of by the gentleman, all things should go on the market as labeled, and, while cotton-seed oil is just as healthful as hydro-carbon and lard, but should go on the market as labeled.

W. L. Anderson, Ladoga. This is an important question and nearly effects us and should not be passed hastily. I believe the farmers should speak out on this and let their wants be known; I believe in making ourselves heard, and whatever goes on the market, especially as food, should always be clearly labeled just what it is and who made it; each and every one can help do this, and in my little way I have been trying to do that, and I find it pays, and as a matter of policy I suggest it to you. I raise considerable honey, and every section I place a guarantee pure and put my name on it; the mark is worth my honey because my honey goes out with that not labeled. I also raise small fruits and all my baskets are labeled so they can see what they are and who they are from. I have been in the business long enough to establish a reputation. We should not cheat the people but give good measure and pure, and thereby establish a confidence with them. We should tell what we make and who makes it. I label my syrup with name; it pays well and goes far towards preventing adulteration, if you do.

Mr. Dewey. I sold several barrels of molasses in this city to a certain party who told me he could sell that molasses on the street at thirty cents, and paid me thirty-five at my factory, and also paid for the barrel. I don't see how he can sell lower unless he adulterates; they also said if the shade was not right they could shade to suit the market.

Mr. Talbert. Is it necessary to take action as to getting a State law in regard to making sorghum? As the case now stands it is difficult for a good sorghum manufacturer to protect himself; they are imposed on. Quite often these wholesale dealers will ship a barrel of sorghum to retail dealers and represent it as being pure and made by certain manufacturers, when such is not the case; in this way we are imposed on and should be remedied.

Hon. J. B. Conner, Indiana Farmer. Any agitation or legislation on the question is valuable, as it awakens thought in the matter. Under the "Original Package System," only the original package of goods must be sold. It is very hard to break a package and make it an original package, but any measure on this subject is important to awaken public attention and keep out adulteration; but the suggestion of the gentlemen here as to putting a brand on the product is a good one. We do not understand the value of that here as they do in the old country. There are names used there now that have been used two hundred years; they realize that these names and brands are valuable. Many people buy by brand, and regard no other as pure. It is a good suggestion to make a pure article and maintain this reputation, which will largely protect yourselves against adulteration.

Mr. Tompkins, Tiffin, O. In Ohio we have to put our name on each article, no matter what it is, vinegar, molasses and other things. The manufacturers of the spurious article are also required to label theirs.

W. L. Anderson. It seems to me something should be done to prevent adulteration of our products. If it is true that some wholesalers take one barrel of sorghum and make three out of it; it cuts us out, and it would be an important matter to prevent this. I, therefore, move that we have a committee appointed to provide ways and means, if possible, to prevent adulteration of our products, and request the President of this meeting to name Mr. Conner on that committee.

The motion carried, and W. L. Anderson, J. B. Conner and Dr. Perce were named a such committee.

Mr. Anderson. I wish to make a suggestion at this time; it may not interest you all, but perhaps will some. I once had a pattern for a retort for making sulphate of lime, but my shop burned down and there is not now a pattern in Indiana. We would like to have interest enough in this to get up, in this city, a pattern so as to get retorts. Any who feel an interest in this may report to the President or myself. It would be a good thing for those who use chemicals in the manufacture of molasses, and would not incur any great expense.

President Leitzman delivered his annual address as follows:

PRESIDENT'S ADDRESS.

As we meet to-day in annual session at the beginning of the year 1891, it seems a fitting time for meditation retrospective, as well as prospective. The plaintive, solemn sounds borne upon the winds in midnight's gloomy hour, proclaiming the death of the old year and the birth of the new, are still echoing in our ears. Like the wild and touching wail of the winds of winter, they seem to sing a melancholy dirge over the year that is dead and gone from earth forever. As we enter upon the pleasant duties of this meeting I trust the first emotion of every heart will be one of gratitude to the Giver of all good, Who has safely led us along the pathway of life through the past year, and has vouchsafed to us many choice blessings, among which are health, prosperity and the privilege we now enjoy of greeting one another again in this our ninth annual convention.

We meet not as competitors, full of envy, jealousy and animosity, but as brothers, as co-workers in one common field of labor, having like interests and all laboring for the same common end, the promotion of the sorghum industry. I assure you, it affords me great pleasure to see the familiar faces of so many old friends and co-workers of other days, who have faithfully stood by our industry in its darkest hours. While we rejoice to meet our old friends, we are equally happy to see so many whose presence is new to us, and whose voices have not been heard in our councils. To one and all we extend a hearty greeting, and welcome you as representatives of the sorghum industry, to all the benefits and privileges of this meeting.

In reviewing the field of our labors, we find the past season, though fairly prosperous, has not been one of universal prosperity. Local drouths prevailed in many parts of the State, including my own, greatly reducing the crop.

In other localities, more favored with local rains, the crop was unusually good. The crop has fallen somewhat below an average, yet when compared with other farm crops, sorghum makes quite a good showing, being much nearer a normal crop than either wheat or corn.

The demand for sorghum syrup has been unusually good, though prices have ruled rather low, having been borne down by competition with the mixed starch sirups with which our markets are crowded. No prime goods remain in first hands, a thing quite unusual at this season, and which points to the increasing popularity of sorghum syrup.

The year 1890 was one of more than ordinary interest in political affairs. It has added several notable events to our national history, none of which, however, will be likely to affect our industry except it is the new schedule of tariff on sugar. Under the old law a duty was levied on all sugar imported into this country, ranging from one and four-tenths to three and one-half cents per pound, according to grade, and all molasses paid a duty of four to eight cents per gallon. Under the new law all sugar above No. 16, Dutch Standard, pays a duty of half a cent per pound, and all sugar not over No. 16, and all molasses are admitted free. Whether this measure will, or will not, unfavorably affect our industry, does not yet appear. Time alone can solve the problem.

A greater, and perhaps the greatest, hinderance to the success of our industry is the ruinous competition into which our products are brought with the syrup made from starch, known as glucose. This bright, clear syrup is used in vast quantities in compounding the various syrups of commerce. These mysterious compounds are offered for sale in our markets under all kinds of fancy names, always embracing the "sorghum," as Tennessee sorghum syrups, Virginia sorghum syrup, honey-dew sorghum syrup, ambrosia syrup, sweet clover honey syrup and *elysian nectar*, the most mythical name of all. These names are the invention of the men who mix the compounds, and are intended to aid them in selling their goods. Most of these syrups have at least one commendable feature, having a beautiful light amber color quite pleasing to the eye; the effect upon the palate, however, is not always so pleasing, sometimes bringing to the sensitive mind memories of cold pressed oil. Aside from the sorghum syrups in our local markets it would be hard to find a syrup not largely composed of glucose. Even our much-beloved sorghum

does not always escape, but sometimes falls into the hands of the mixer, and is changed beyond recognition. An ex-employee of one of the leading wholesale groceries of Indianapolis told me that he had seen sorghum syrup mixed in the proportion of one barrel to four of glucose. Glucose may be harmless and wholesome, and may have a legitimate field of usefulness, but if it has its boundaries should be circumscribed by law.

The sorghum syrup industry is not waging a war against neighboring industries, neither is it asking a protective tariff or bounty from the government. But it does ask to be delivered from the heavy burden it is compelled to carry which is not its own. It only asks to be allowed a fair chance with other industries. This it can never have as long as these fraudulent syrups can be sold as products of sorghum and sugar cane.

This Association should speak out in unison, as with the voice of one man, and demand of our Legislature the passage of a law which would require all syrups to be properly labeled and sold under their true names. If the syrup is mixed it should be plainly marked, showing the quality and quantity of each component part, and if straight goods, it should be marked as such.

The eyes of the sorghum world are again earnestly fixed upon Dr. Wiley, in the hope that he will yet prove a veritable Joshua to lead the weary band of sorghumites safely out of the wilderness. This hope is inspired by the announcement of some promising results obtained by the Doctor in some experiments upon the purification of sorghum syrup. These experiments show that most of the gummy constituents of sorghum syrup may be removed by treatment with alcohol. This method, if practical, may solve the sorghum sugar problem; for the chief impediment to successful sugar making heretofore has been the large proportion of these gums present in the juice, preventing the crystallization of the sugar. It is not likely to prove a practical method for use in syrup making.

I would respectfully call your attention to the antiquated method of electing officers, which has been in vogue since the organization of the association.

In pursuance to this method the President appoints a committee of three members whose duty it is to select a set of officers for the ensuing year, and report to the meeting. The report being concurred in, the Secretary is instructed to cast the vote of the Association, no one objects, and here the election ends. This antique custom should be substituted for one nearer in harmony with modern ideas of free institutions. Each member ought to have the privilege of casting a vote for the man of his choice. I would recommend for your consideration the propriety of deferring the election of officers until the last session of the meeting, that we may thereby become better acquainted with one another, and be able to select the right men for the right places. I will not consume much time discussing the sorghum sugar outlook. This matter I will leave mainly to our worthy and efficient Secretary, ex-President Chapman, who will discuss the subject at length. Without fear, however, of trespassing upon his grounds, I will venture to say that, notwithstanding the desirability of having a great industry developed among us, it would be suicidal to engage in the manufacture of sugar from sorghum cane in Indiana. If the industry ever succeeds in our State, it will be through the improvement by selection and cross fertilization of old varieties of cane, or the introduction of new ones.

But why should we want to make sugar while syrup is more profitable? And a plant for making sugar would cost ten times as much as a syrup factory of same capacity. Nearly every sorghum sugar factory has gone down in financial ruin. Most of the companies, however, have been recognized and are trying it again; not so with the syrup factories; there is not a single one which was built for syrup alone, with brains and money enough to run it, that has not been financially successful. We can well afford to wait and watch results of experiments in Kansas. Meantime we should employ every legitimate means within our reach for the improvements and advancement of the syrup industry. We should strive to improve our cane, our factories, our mode of manufacture, and our syrup. Improvement should be our watchword and excelsior our motto.

This proudest motto of mankind,
Write it in lines of gold.
Upon your hearts, and in your minds,
The inspiring words enfold;
And in misfortunes dreary hour,
Or fortunes' prosperous gale,
It will have a cheering power,
You'll know no such word as "fail."

There is a disposition on the part of some manufacturers to drop the word "sorghum" from the name of the products. They manufacture cane syrup, pure amber cane syrup and northern cane syrup, but no sorghum syrup. Now brethren this is cowardly! You are not meeting the foe face to face, but skulking around him. Call your syrup by its legitimate name, and if not popular under that name, go to work to make it so. If, in your locality, sorghum has not been redeemed and purged from the ignominious attributes ascribed to its name acquired during its pot and kettle apprenticeship, go to work and redeem it. Make your syrup of such excellent quality that all other syrups will be enhanced in value by calling them sorghum.

In conclusion, I would say to you all, be free to enjoy the full benefits of this meeting; ask, that you may receive; seek, that you may find—and, if you receive freely, you should also give freely; that the meeting may also be one of mutual benefit. I wish you all a most profitable meeting, and now may the blessings of a benign and ever beneficent Providence attend you and give peace, prosperity and happiness to all.

DISCUSSION.

Mr. Talbert. I think the part relative to the election of officers is timely. Taking the paper as a whole, I am well pleased with it.

Mr. Dewey. I concur with the sentiments contained therein. We should call it sorghum, and not cane. It is cowardly to call it anything else.

Mr. Anderson. The relation of the sorghum man and sugar interest may be somewhat effected. It is not hard to take sugar and make syrup out of it, and when it is cheap enough it may cut off our business in some degree. I have had some experience in that business the past year in the introduction of beet sugar,

and notice that Prof. Wiley in his last bulletin, if I remember correctly, announces the attempt to make sugar from sorghum a failure. Cane was first brought to this country in 1857, 33 years ago. After 33 years of experimenting we are informed from headquarters that it is a failure. However, the suggestion made by the President in regard to purifying syrup of gums has done much towards making syrup free from gum. Prof. Wiley has said it might be cut up by alcohol and sugar be produced, hence the statement that it is a failure would perhaps be folly. It would be well to consider the discovery of the chemist, and if there is anything practical in that it would be well enough to watch that point. In regard to beet sugar I wish to say that factories are going up rapidly in the United States, and we are in the beet belt. The Professor sent me about a bushel of seed, which I have distributed, and brought back samples of the beets raised. I tested and found them rich in sugar. In all the experiments I made almost the whole syrup turned to a mass of sugar. I can not tell the per cent., but it was quite a large amount. It may not be long until factories will be established here to make beet sugar, but you can not manufacture syrup from beets. I am satisfied the time will come here in Indiana when we will have an abundance of beet sugar.

Mr. Dewey. It is well to look after the sugar industry, but we can not make it for nothing. We must have a price, and we can make sorghum about as cheap. I do not think we need to be alarmed about the supply of other materials, but there will be a chance for sorghum yet.

President Leitzman. It is customary to elect our officers at the first of the meeting, but as there are new members coming in each year this does not give these new members any show; they can not determine intelligently; by putting it off until later in the meeting it gives a chance to become acquainted. We want to use the best men in the right place. It has been customary to appoint a Committee on President's Address, to whom the address should be referred for consideration. It will save much discussion here.

On motion of Mr. Pope the following committee was appointed on the President's Address: Messrs. I. H. Tompkins, Christopher Fields and W. L. Anderson.

W. L. Anderson. Dr. Perce has declined to serve as a member of the Committee on Adulteration of Food, and I would ask that the President be appointed in his place.

President Leitzman was appointed in his place.

The Acting Secretary of the Association was instructed to transmit the following telegram to Secretary A. S. Chapman:

Resolved, That this Association hereby tenders its sympathy to our Secretary in his family affliction, and regrets his inability to be with us.

GENERAL DISCUSSION.

I. H. Tompkins, Tiffin, O. I have done nothing in the sorghum line for four years, and it would hardly be proper for me to say anything. I am, however, fitting up and am going to try it on a larger scale. I contemplate defecating with automatic process, and shall use a Porter evaporator.

Mr. Fields. Our experience in making molasses is, the faster you boil it the better and clearer article it will make, and the longer and slower you boil the more inferior the molasses. We want to evaporate as fast as possible after the work is begun until finished. We never use chemicals except in the latter part of the season, when we throw in a little soda.

President Leitzman. You will find, Mr. Fields, that lime will answer the purpose better than soda. Soda has a tendency to darken the sirup.

Mr. Dewey. I would like Mr. Tompkins to describe his defecator. It would be of interest to us.

Mr. Tompkins. The one I used this season was made for temporary use. It was simply a double box made out of twelve foot boards two feet wide, with pipes so arranged as to admit of rapid defecation, the scum passing off into a receptacle for that purpose. I sometimes let the scum rise and then draw the molasses off, then let it boil and skim until the green was all taken off. I like that better. I let it settle from fifteen to thirty minutes and then draw off.

Mr. Dewey. Is there much waste in that way? Do you use a swing pipe?

Mr. Tompkins. I do not use a swing pipe.

Mr. Dewey. How deep is the juice pan in defecating?

Mr. Tompkins. It is from twelve to twenty inches, made in two sections and divided in the middle to separate the steam coils.

Mr. Dewey. In one end of my box is a four-foot coil and twenty-one inches of surface angle; there is where the juice enters the defecator. I had it fixed so the juice would run against the side of the defecator and be spread out, and not carry the scum into the tube.

President Leitzman. You haven't had any experience in saving the second scum for vinegar? You don't mix that with vinegar?

Mr. Tompkins. I have half a barrel of that kind, but have not tried it yet. I think, however, it would be good.

Mr. Anderson. I put some in an iron tank, and the vinegar ate it up.

Mr. Leitzman. You should have put it in a wooden tank.

Mr. Fields. For several years we have made vinegar with the skimmings by pouring cold well water in the barrel. We sold ten or fifteen barrels of that kind of vinegar, and it answers the purpose well.

Mr. Anderson. What price do you get for vinegar?

Mr. Fields. We got fifty cents per barrel.

Mr. Anderson. Can any one make vinegar at that price? In Illinois they make it at even less figures, but they are protected in that, but in this country we can not make money at making vinegar.

Mr. Talbert. Perhaps it is about time to cease discussing this question, and spend a little while on the topic of cane seed. I have a friend who lives over at Sterling, Kansas, who claims that cane seed is as good as corn for feeding hogs, and will fatten any kind of stock. He proposes to plant largely and save the seed. The majority of cane growers over the country let their seed go to waste. I believe it is a matter we should investigate. It requires threshing as other grain to get the glume off. I simply call your attention to this subject, that we may educate our customers on this point.

Mr. Fields. We weighed some of the Orange seed, and it weighed fifty-seven pounds to the bushel—nearly up to wheat. We find, after grinding, it produces fat and makes cows give milk and butter; it is also valuable to give to hogs and chickens. We had some ground and bolted, eating some ourselves, as did our neighbors, and pronounced it equal to buckwheat cakes. I have for sale about 150 bushels.

President Leitzman. What amount of seed do you get to the acre?

Mr. Fields. We had about four acres of Orange cane. We did not get all the seed, but thought it would make fifty bushels to the acre.

President Leitzman. How much molasses did you get off of that?

Mr. Fields. That piece made 150 gallons to the acre, and, as I said before, we have 150 bushels of seed to sell.

Mr. Anderson. How do you know it is reliable?

Mr. Fields. I have tested it. I intended to have brought some of the seed here to-day, but forgot it. I am testing nearly every seed sprouted.

Mr. Anderson. It is difficult to get cane seed to grow after it is threshed and put in bulk. I have sent to three large factories in the United States for seed, and scarcely any would grow. At Lafayette Mr. Deming thought he had seed that would grow, but it proved otherwise.

Mr. Fields. This is my first experience. I had a nice dry granary floor to put it on, and I don't think it is injured but what it will grow.

Mr. Anderson. How long after cutting would you thresh?

Mr. Fields. About two weeks perhaps.

Question. In making this test, did you take from the bottom of the pile?

Mr. Fields. Yes, I put my hand down deep in the pile.

Question. Is this seed like that which Mr. Huntington was selling?

Mr. Fields. His seed was put up in sacks and did not get air enough to keep from spoiling. Mine don't do so.

W. L. Anderson, Ladoga. This is an important subject and the time will come when we will plant more largely than now. It is a hardy seed; let it lay out in the snow and rain, and next spring it will come up all right, but if you get it over-heated it is gone. For the purpose of saving seed to plant I let it cure before putting away and then I build a pen like a corn pen and fill it with seed about fourteen inches, putting bottoms up until I get as high as I want to go, cover it over and let it remain there until I get ready to thrash. Cane seed put up in this way will grow, but if you bulk it early it will heat.

Mr. Parnell, Greenfield. I have come to this convention to learn what I can about the sorghum business as I aim to build a large factory the coming season, and feel that I have been benefited by so doing. I live in a country where they don't raise much cane, but there seems now to be a growing interest in that direction. I know of men who are asking me how many acres one man can tend and tend it well; I would like to be able to inform them on this point.

Mr. Talbert. If the seed, after thrashed, was spread out and stirred it probably would not injure. I fully endorse Mr. Anderson's theory in regard to seed. Any man who buys seed should test before planting.

C. B. Nicholson, Clayton, Ind. The comparative value of cane seed with other grains for feeding purposes is of considerable importance. I find that I can sell an abundance for two dollars per load and generally at three. Any yield at all will make three loads to the acre and often four. It is excellent feed for hogs and chickens. I fattened a hog this year of 350 pounds weight on cane seed without any corn at all. I gave it a chance of corn but it refused it and took cane seed in preference, and I have found no evil results from feeding it. I think it is worth one-half as much as corn.

Mr. Mansfield. I have had an experience of ten years in growing cane and think from my observation that one person could not tend more than eight or ten acres of an ordinary season and perhaps not that, while small. If it is wet he would have to hoe his cane which would necessitate a considerable amount of labor. My manner of planting is to plant three feet apart in hills and cultivate each way. I always give my crop one hoeing and tend afterwards as a crop of corn. The soil should be thoroughly pulverized and as soon as the cane is up cultivation should begin.

Mr. Anderson. I will say to the gentleman that I can tend more cane than he can corn; it can be raised cheaper than corn.

Mr. McQuisten. I think clay ground with the use of fertilizer will make one-third better crop, and two weeks earlier and less hoeing. I have been using the Double Eagle Phosphate made at Philadelphia; it is better than bone dust, and put a tablespoonful to the hill.

Mr. Berry. Would it not do to apply after the cane has come up?

Mr. McQuisten. It would not get to the roots so well.

Mr. Tomkins, Tiffin, Ohio. A year ago, in Ohio, I noticed a crop not coming up well, the trouble was they had planted it too deep, two or three inches; cane should not be planted deep as it is very important that it should get up before the grass and cultivate immediately. We prepare the seed in a tin pan and pour on enough boiling water to cover the seed, letting it set from thirty-six to forty-eight hours, afterwards put on land plaster to dry it, and cover one-half inch deep. The object in soaking the seed and planting shallow is to get the cane up before the grass. If you plant dry seed and cover two or three inches deep, the grass will get a start first and give trouble.

Mr. Pope. I cover with a brush.

Mr. Symonds. I have lost two or three hundred dollars by sending to Chicago for seed. I would like to know what is the best kind of seed to plant, the easiest to cultivate and best to yield.

Mr. Anderson. I am, perhaps, the oldest cane-grower here. My father brought cane seed to this country in 1857. The raising of cane, I think, is going to be an important question; no two men raise alike, but have their ideas and theories in regard to the matter. If we are going to raise on a greater scale than we are now, we had better adopt the plan as in Kansas and other places. I can raise of an ordinary season more cane, and cheaper, than I can corn; true, there are seasons in which it is impossible to cultivate, then it is worse than corn. My process is to prepare the ground well, as we do for wheat, then take my wheat drill and stop up all holes except two for the rows, and with this drive right along and

drill my seed. Cane seed is about the size of wheat seed and should be put in the same depth. My drill is arranged so when I drill across the field I turn right around and fall back in the track of cane and don't have to use stakes, the rows show for a mark; in this way have drilled sixteen acres a day. The fact is you put it in rapidly and don't have to mark and cover. As soon as it comes up I take my harrow and harrow across the rows, paying no attention to the cane. In this way I do my thinning, letting the harrow run at ordinary depth. After the cane is up a size the harrow should be waited down, if it is thick keep doubling and put it right down. This harrowing is equal to two plowings. After this I put on narrow, long bull tongues, letting them down under the roots of the cane, so as to loosen up the soil and let the fenders rub right up to the plant. If you will follow that treatment you will be troubled with but few weeds. After two or three times plowing, and usually the last time, we use bar shares, hilling it up high, which is a preventive, in some measure, from falling down. From Early Amber I have got from twelve to fifteen tons to the acre. Orange, I can raise from fifteen to eighteen tons. I plant Amber three feet apart, while Orange should be wider. We can not harrow lengthwise, because, if you do, it will tear it out. These are points we all have in common, but when we come to strip, cutting and raising cane, we are all interested.

Mr. Talbert. I have planted with a one-horse planter by substituting a different plate, the holes in a common planter are a little too close to do satisfactory work.

N. B. Dewey. I planted some with the Hoosier corn drill, dropping it nearly right, six to eight seed in a hill. The drill requires to be held up a little or it will cover the seed too deep, you can plant ten acres a day in this way.

Mr. Berry. I have heretofore planted by hand, this year I used a Keystone two-horse planter with good success. I had my ground in good condition and while the seed was put in, in a more regular and uniform depth by this process the cane come up quicker. I wish to ask Mr. Anderson, if he has had several years' experience in raising cane in the way of which he speaks.

Mr. Anderson. I have practiced harrowing for six years.

Adjourned to 7 P. M.

EVENING SESSION.

After the reading of a letter from Prof. Wiley and a few words of commendation and honor to the Professor, for his energy and zeal in originating the "Indiana Cane Growers' Association." Mr. S. W. Tilson, of Franklin, submitted a report from the committee appointed last year on the adulteration of sorghum molasses.

Mr. Anderson. I move that the report be accepted and the committee discharged. Carried. I do not know whether you aim to carry this to the Legislature as read. There is a committee already appointed to have this matter in charge, of which I am a member. Probably the Society might order whether this be carried to the Legislature or not.

Mr. Nicholson. The motion was to receive the report and not adopt.

Mr. Talbert. It is already received and now we can adopt it or lay it on the table.

The Chair. It would be proper to present this matter in the shape of a resolution to the Legislature.

Mr. Tompkins. We probably should reconsider the question and refer it back to the committee.

The Chair. That would be the proper way, if we legislate through that committee.

Mr. Johnson. While this committee has this matter in charge there will be other bills against adulteration of foods. If this is not a separate bill itself it can be incorporated in the other, but I am favorable to this committee pushing this so as to pass this Legislature.

Mr. I. N. Cotton, Traders Point. I think myself that is in the line of production of pure food. There is a food bill before the Congress of the United States for the remedy of the whole nation. The influence of these societies over the country by endorsing it will do much towards effecting its passage. I am of the opinion it will pass, but we should urge this also before the Legislature.

President Leitzman. Should we present it in this form or in the form of a resolution, setting forth our wishes? These law-makers prefer making their own bills. A resolution passed by this Association might influence that body to some extent.

Mr. Tilson. This body should project this bill and give it to a Representative to introduce.

Mr. Fields. It seems to me we could put this in the form of a list of what we want protected and request them to adopt it and put it through for our benefit.

Mr. Anderson. We should not dwell on this by putting in a request or resolution. All these gentlemen ask is to fill out these blanks. We are not the ones to do this. We should allow our Representatives to fill out the bill according to their own judgment.

D. H. Talbert, of Spiceland, read the following paper on

MY EXPERIENCE WITH NATURAL GAS AS FUEL.

I am aware that this subject directly interests but a small proportion of our Indiana sorghum makers, from the fact that so few are within reach of an abundant supply of gas. I think no one would be justified in going to any extraordinary expense, like piping a great distance, or tearing up and moving to it, expressly for the sake of securing this fuel. There might be a case where one was contemplating a change of location, or where one really *needed* to rebuild, that it would pay to look out for gas, and where circumstances are at all favorable, one should not fail to prepare for its use. Natural gas is, in no sense, an *essential* factor in making first-class molasses, and it will not atone for mismanagement, poor machinery, bad location, the absence of perfect cleanliness, or the many other conditions that contribute to partial failure, loss of profits, etc. We can claim but little merit for gas for evaporating above good wood or steam, *except* that it is a great convenience and

more economical. This even, applies *only* to such cases where it is properly handled. A few cases came under my notice last season, where the operator was very much worsted by an *attempt* to use gas for fuel, and, with one or two exceptions, I have never heard of its use being at all satisfactory, in the absence of some experience from some source on this line. In my paper, read before you two years ago, on this same subject, I tried to sound a warning note to those contemplating its use. I knew that most operators were possessed of the idea that all that would be necessary in burning gas, was simply to insert a pipe into the furnace, apply a match, open the valve, and go ahead, gas being such a great fuel, you know, it could not *help* but do the business to beat anything ever tried. I know this was my idea, and I know just how soon, and about how much it cost to find the facts. It is useless to try to burn gas without first providing for its absolute control by the operator. It can only be used under an evaporator for the purpose of boiling juice, by having its regulation performed by hand; i. e., no *automatic* regulator can be attached, as in the case of using it under a steam boiler, where the steam pressure is used, when it rises to a given point, for the purpose of shutting off the gas supply. If boiling in evaporator becomes too intense at one point and too lax at another, it can only be remedied by adjusting with the hand. This is impossible without a burner and system of valves and mixers, constructed expressly for this work. The essential point is to secure a perfect and even distribution of the heat and flame. With the supply of gas usually available, even with a good regulator, the pressure will be more or less variable, which fact requires that all mixers should be adjustable, so that the amount of air admitted may be controlled at will. Again, a good draught is required, which will also change, more or less, with atmospheric conditions, requiring a readjustment of air supply in the mixer.

I firmly believe that where gas has failed to give satisfaction as a fuel in this work it is entirely the fault of the operator and not the gas. My three years' experience with its use convinces me that it is unequalled by any other fuel, when properly handled, and where there is an abundant supply. My rather over-sanguine ideas of gas as a fuel influenced me, more than any other one thing, into the molasses business, and this is one reason at least why I should feel grateful for its discovery and introduction, because I have learned to think well of this business, and should our supply of gas fail at once I should still continue the work of converting green juice into as good a quality of syrup as I possibly could.

Perhaps it is useless for me to go into further details concerning the use of gas as a fuel while there are so many present who never expect to use it—at least, not for some years. I want to say all for this great gift of nature that I can reasonably. I think so much of it that I sincerely hope our present Legislature will speedily pass a law prohibiting its willful waste in a single “flambeau” street burner, anywhere in our State, and that will effectually put a stop to its waste in all forms.

And, while I think I fully appreciate its worth in our especial line of business, I do not want to hold out the idea that no one can make molasses without gas, because you *can*. I would rather encourage you to fix up where you are, put in the best modern appliances for your work, put all the style, capital and energy into your business that you can command, and let us all use our best efforts to lift the

sorghum business up on to even yet a more reputable and solid basis. The details in connection with our work present a theme almost boundless in its scope. We know the past has revealed much, but my faith is that the future has much more in store for us than has yet been made known. In other words, our industry is only in its infancy. Its development depends largely upon the enterprise and efforts put forth by those now engaged in the work. If the business is worth anything at all, it is worth more than an old, one-horse mill, a rickety brick furnace, an old, board shed for a cover, and the whole besmeared with scum and molasses. I do not despise any man's business because it is small, if he will only keep it clean, and turn out clean work. The odds may be against the small operator, but for this *reason alone*, we should throw nothing in his way. Our fight should be against nothing but a poor, second-rate article being produced and placed upon the market, and against what is worse yet, the vast quantity of impure glucose mixtures, which have for some years been crowding out the pure article by competing prices. I am not saying that glucose is unhealthful, but I do say that any syrup containing a mixture of it is not pure sorghum. The demand of sorghum has been fair enough all the while, but the trouble is, the unsuspecting consumer has had his order for sorghum filled with the adulterated article bearing its name. I am glad there is evidence of a change for the better.

The chair announced as a committee on programme for next meeting John Richmond, Daleville; D. L. Talbert, Spiceland; C. B. Nicholson, Clayton.

Ira H. Tompkins, of Tiffin, Ohio, read the following paper on

CIDER, JELLY AND APPLE BUTTER.

The subject assigned me is cider, jelly and apple butter making. The early lexicographers tell us cider is fermented apple juice, but, by common consent, the people now also apply the term to fresh or unfermented apple juice, as the fermented article is rapidly and justly falling into disuse, except for vinegar.

Therefore, my use of the word here refers to the unfermented article.

I have no doubt that when the dictionaries were made, the definition was literally correct, for, with the crude apparatus then used, requiring a day and part of two nights to work a load of apples, fermentation would surely begin.

But, thirty odd years ago, there came the Stevens patent two-crib press with nail grater, then, in due time, and each a big improvement on its predecessor, came the knuckle joint press, the four-screw press, and now we have in the high-speed knife grater and hydraulic press made at Mt. Gilead, Ohio, capacity for grinding three hundred to four hundred bushels of apples per hour, and pressing one hundred to three hundred barrels of cider daily, a machine worthy of this age of steam and electricity.

Hydraulic pressure has long been known to be the greatest, most economical and safest means of concentrating power, but was not used for cider making until some ten years since. This machine can easily be set up in an open field and make ten barrels of cider, all within ten hours, but it *should* be in a building.

I have mine in a former flouring mill two and one-half stories high, with good basement.

The load of apples are driven to the hopper, the empty barrels rolled off onto a platform as high as top of wagon box, then apples are shoveled out and elevated to second story and into graters, then the pulp falls to press on first floor.

By the use of racks, cloths and form the cheese is laid upon a truck as fast as ground, then the truck is run onto the pressure platform and the pressure pump started which forces the platform, truck and cheese up against the beams with as great power as is desired and the pressure kept on steadily till cider is all out, the pressure being regulated by a safety valve through which the surplus water escapes.

This is a fine point of superiority over any screw press, for they must be watched, stopped and started as the pressure dies away, thus losing time.

When the cheese is pressed dry a valve is opened allowing the water used to run back into the water box ready for next pressing. The platform, truck and cheese quickly drop back and the cheese is run to opposite side of mill. In meantime, another cheese is ground and laid upon another truck ready for pressing.

Thus the work is continuous and very rapid.

The cider runs into a box under the press and a cider pump forces it into tanks in second story.

If for customers, it goes alternately into two six-barrel tanks on elevator side of mill. Soon as wagon is empty it is driven around between the platform and mill, the empty barrels rolled into wagon from opposite side of platform and there filled through a hose connecting with tanks in second story.

If to be evaporated, the cider goes into another tank on the third floor, and runs into the steam evaporator where, in from three to five minutes, it is finished into jelly, apple-butter stock or boiled cider for customers, and runs out continuously.

Cider boiled by the continuous steam process is far better than copper-kettle boiling for apple-butter, and the farmers soon prefer to wait for the boiling by steam, paying one to two cents per gallon of fresh cider.

A good thermometer is stood in boiling cider at finishing end to indicate the density of the cider. In pure cider a temperature of 220° will usually make jelly, and 215° to 217° for boiled cider.

Two hundred and eighteen degrees of heat will make jelly from water cider. "What? Boil down water cider?" Yes, there is where the money is. I soak and re-press every cheese of pomace if the apples were good. "Yes, but I thought the hydraulic press took all the cider out." With my one hundred tons pressure I do take about all the juice out, and one thousand tons would get very little or no more, but the jelly—gelatine—is a gum that will not run out till dissolved. The juice of the apple brings out a part of it, and warm water brings out much more.

When the crop is light I put the pomace into shallow tanks, or vats, near the press, wet it well with water (condensed steam) from the evaporator, or from an eighty-barrel tank on the third floor, stir it up well, then shovel onto cheese, press out and pump the water cider to evaporator. But if the crop is good, the press is run so steadily making cider for customers there is little chance for re-pressing, so then the pomace is thrown into a hopper, elevated to second floor, where it is re-ground, or broken up, by a nail-grater, then falls into either of two tanks, six feet square and twenty inches deep, where it is well soaked with warm water, then run

down to second press, put in expressly for this use, is there given the same pressure as before, and the water cider, by another pump, is sent to the evaporator, where it is quickly boiled into jelly, boiled cider, etc., as desired.

Everything with which the cider comes in contact must be washed frequently, and if the weather is warm should be washed daily. For this purpose I have an eighty-barrel tank on the third floor, and by the use of hose can quickly do the cleaning. Water from this tank also re-fills my fifty-horse boiler when needed.

For making into jelly, the cider must be absolutely free from fermentation, and the less time between grinding the apples and evaporating the cider the better. It is also very important that the boiled cider, for whatever purpose intended, should be cooked as quickly as possible.

Four to six quarts of water to each bushel of fair apples used will bring from the pomace one and a half to two pounds of the best quality of jelly, which, in custom work, is clear gain, and in merchant work will go far towards paying for apples bought.

The most popular and profitable mode of making apple-butter is to have a round tank holding from five to twenty bushels, which can be three-fourths filled with clean, sound whole apples of as good quality as can be had. Have a close-fitting cover on the tank, and weight it down. With pipe or hose conduct live steam into bottom of tank till the apples are reduced to a thin pulp or sauce, which is then drawn off and put through a brass wire sieve of twelve mesh per inch.

The sauce is then put into an oblong tank of suitable size, containing a coil of copper pipe. Sufficient jelly or boiled cider is added to give the butter the desired strength; then steam is turned into the coil and rapid boiling ensues for an hour, more or less, when the butter is done.

It is then flavored, and while hot is put into 2, 4 or 8 quart stone jars, or into pails, barrels, etc., the product being a light-colored, good flavored butter, vastly superior to the rank, carbonized article obtained by all-day boiling and scorching in an open copper kettle.

One bushel of good apples as filling for twenty gallons of fresh cider is a good proportion. One hundred bushels of fair apples will make one hundred gallons of apple butter. Apples for filling should be carefully selected, and all worms and dirt removed.

Some think apple butter made from whole apples for filling is unclean, but these same people readily drink cider made from any kind of dirty, wormy apples. Paring apples for butter not only takes time, but the best of the apple, which lies next the skin.

A barrel of assorted bungs, a bung borer, a bung starter and other needed articles should be provided and put in a handy place. The whole outfit should be conveniently arranged so as to save labor, as steam is cheaper than man power.

Much vinegar can be made during the season from drippings from the press and waste parts of jelly. Formerly people considered pressed pomace not only valueless, but a nuisance, and it was dumped in some waste place, but the world moves, and all progressive cider-makers know it is very valuable food for all kinds of stock when fed properly, as grain is fed, and after it has lain a year in a shal-

low pile, or forked over once or twice, is a most excellent fertilizer for all kinds of grain, and for raising strawberries, cucumbers, etc., is just the right thing.

Cider making attaches onto sorghum making very naturally, as the same building, boiler, engine, evaporator and many other fixtures answer for both branches of the business, and in Ohio many are combining the two. The only objection urged is that they both come at the same time. To that I reply, as did the boy reprimanded for extravagance in using both butter and honey on his bread, that "it was economy, as one piece of bread answered for both spreads." So one set of brains can oversee both cider and sorghum making at the same time.

IRA H. TOMPKINS.

DISCUSSION.

Question. What kind of pails do you put apple-butter in?

Mr. Tompkins. I usually put in jars. Wooden pails are not so good; the jelly or butter will taste somewhat of the wood.

Question. In shipping jars, is there not danger of breaking them?

Mr. Tompkins. They handle them with care.

The Chair. Do you experience any difficulty in getting this pulp to go through the sieve?

Mr. Tompkins. Yes, sir, sometimes; but if we make it quite thin it will mostly run through. We use as fine screen as possible.

Mr. Anderson. You don't try to take the worms out of the apples?

Mr. Tompkins. Not for cider making, but do for apple-butter. [Laughter.]

I. N. Cotton. Do you feed the pomace to the cows? A reporter here suggests that they might give buttermilk. [Renewed laughter.]

Mr. Tompkins. I am not aware of that. Any kind of sweets I suppose are good, but not sour.

The Chair. What kind of evaporator do you use for boiling jelly?

Mr. Tompkins. The Haring evaporator for jelly, and the Porter for apple-butter.

The Chair. Did you ever try the Haring on sorghum?

Mr. Tompkins. Yes, sir; but it did not suit me, although several are using it.

Mr. Leitzman. That's the evaporator manufactured at Mount Gilead?

Mr. Tompkins. Yes, sir; it is not good for sorghum, but fine for jelly.

Mr. Anderson. What is the cost of the evaporator?

Mr. Tompkins. Mine cost \$150.

Question. What do you pay for choice apples?

Mr. Tompkins. We have paid about fifteen cents a bushel. Three years ago I bought a hundred bushels of Talman Sweet for fifteen cents.

Question. Can you use bruised fruit in filling?

Mr. Tompkins. Yes, a little, but it should not lay long enough to sour a part of the apple.

Question. How much jelly will a bushel of apples make?

Mr. Tompkins. That varies a good deal.

Question. How much do you reduce your cider?

Mr. Tompkins. It requires from six to eight gallons to make one of jelly.

Question. How do you get apples so cheap?

Mr. Tompkins. There is not much money in apples at seven and eight cents to the seller, but there is money in the manufacture.

Mr. Dewey. There are many, in Missouri, selling from the tree sorted apples, at seventy-five cents per barrel; that would be twenty-five cents per bushel.

Mr. Talbert, Spiceland. I will give my experience in making cider with a hydraulic press. I have not had an extensive experience, but have practiced enough to satisfy me on some points. The press was represented to me as not requiring much power, but I found that I could not run the press and sorghum mill at the same time, satisfactorily. It required from four to six-horse power in full capacity. I found that it was a great mistake to try to make sorghum and cider at the same time. If we have sorghum that is all we can do, and we don't want to stop the mill to make cider. If I could make cider all day I could make money, but to work at piecemeals during the sorghum season there is not much profit in it.

Mr. Tompkins. He misunderstood me that the same power would run both sorghum and cider-mill. I have two presses and elevators; a six-horse power engine will run the cider-mill and both presses as fast as any man can shovel out.

Mr. Tilson. You can't do this with six-horse engine—sorghum and cider at the same time.

Mr. Tompkins. No, sir.

Question. You could not with a ten-horse power?

Mr. Tompkins. Yes, I think I could. No person who has a ten-horse power will make cider a business of itself; it would not pay him to go into it. If he reduces it down in an evaporator there is probably some money in it. At our cider convention it was decided to hold our next convention at Toledo, the second week in January, and they have sent an invitation to the Michigan Cider Making Convention, and request members of this Association to meet with them to organize a Tri-State Association. During the labors of the convention there was an effort to secure a vinegar law, and did much towards urging a law against adulteration of foods. That is one reason they want three States to meet and have a uniform law.

Mr. Leitzman. What kind of elevator do you use? I have one that is not a success.

Mr. Tompkins. The elevator I use is a sprocket chain, having little projections every two inches, and runs in a box with cleets above the end to prevent the paddles from coming up.

Mr. Richmond. What speed does that elevator run?

Mr. Tompkins. Not over two and one-half miles an hour.

Mr. Richmond. Mine runs too fast and throws the apples over.

Mr. Leitzman. How does it compare with the cane mill?

Mr. Tompkins. It should run faster.

Mr. Leitzman. The majority of cane mills run about twenty-two feet per minute.

Mr. Castle. For our apple-butter elevator we use a common binder sprocket chain. About every eighteen inches we put on a small clamp and insert a link in

the hard oak wood, in that way, in elevating the apples to the grater, the only trouble was the small crab apples would sometimes slip under the chain.

Mr. Talbert. The hydraulic press is alright for the business.

The Chair. How about this piston that works up and down?

Mr. Tompkins. The ram is put with the rim down on the inside of the leather and packed with a piece of rubber packing or ring three-fourths of an inch thick and an inch wide on cast-iron plate, and tightened up with a nut that expands the leather against the cylinder making it tight. Of course, in time it will wear and have to be changed. For the last two years they are lining presses with copper, and are not liable to rust.

Mr. ———. If a person intends to grind and do much business, he must have plenty of power, because it grinds on a concave similar to that of a rub-lock on a wagon.

Mr. Richmond. It don't require so much power as you might think, I use a 16-power engine and run cane mill, cider press and cut three thousand feet of lumber all at the same time.

Mr. McQuisten. There is one in our neighborhood, a two-horse power, and they grind as fast as a man can throw in with a shovel.

Mr. Tompkins. A large number of thrashing engines, worn out thrashing wheat, are running cider mills and cane mills; the flues are out of repair and are not full horse power.

Mr. Leitzman. I had an old engine to my sorghum mill and it could not do the work, yet it was called ten-horse power.

DISCUSSION ON FERTILIZERS.

Mr. Passmore. How much fertilizer would be safe to use without injury to sorghum.

Mr. McQuisten. My experience has been it don't hurt the molasses, but if you put too much on it hinders the growth.

Mr. Passmore. Can you use manure?

Mr. Tompkins. It will spoil the syrup.

Mr. Leitzman. It depends much on the rains; in ordinary seasons I consider it rather unsafe.

Mr. Tompkins. It should be rotted a year before putting on.

Mr. Nicholson. If we manure, we should then put in corn the first year, and then put in sorghum afterwards.

Mr. Anderson. I have hauled out manure in the spring and plowed under, and I defy the man to show me a difference between that and that which has not been manured, and both in the same field. If the manure is hauled in the fall I can not see any difference.

Mr. Fields. We haul out manure every fall, but do not see any difference in the quality between that we fertilize and that we do not. Our land is a rich, black ground, and well ditched. We also use pomace after it rots, hauling it out and putting it on the ground, and see no injury.

Mr. Leitzman. Do you apply in the fall or in the spring?

Mr. Fields. I apply in the fall, and do not use chemicals.

Mr. Symonds. Has any one tried ashes?

Mr. McQuisten. I have tried it, but do not think it did much good.

Mr. Dewey. It is best on potatoes.

Mr. Fields. We have in our country low, black land, that is rather chaffy, and does not seem to produce well. As an experiment we have covered a half acre of this ground with the leached ashes from the furnace, and find it profitable. It seems to kill that chaffy nature or element, and then will produce as good as any. The Hondurous grows down deep, while the Amber does not so much, and don't get higher than a man's head, and don't do so well as Hondurous. We find where we have burned brush heaps it will bring good corn.

Mr. Tilson. We can not all manure with ashes and make a good quality of molasses.

Mr. McQuisten. That is what we have got to learn; some soils need a different fertilizer from others.

Mr. Mansfield. It does not matter whether the manure is put on in the fall or in the spring. I manured some last spring and planted corn, and the growth was much better than where no manure had been applied, and I could see no difference in the quality of molasses from that manured the year before. However, it may depend to some extent on the season, but, if the ground is poor, manure won't hurt it.

Mr. Dewey. The question has been asked how much fertilizer should be put to the acre? It has been stated that a hundred pounds have been used with a benefit.

Mr. Anderson. The gentleman over there has thin land. The idea is to bring his land up, but I do not think a hundred pounds of fertilizer will bring it up. If he wants to bring it up permanently, stable manure and clover are the best fertilizers he can find, and when he gets it in good condition he can raise cane on it indefinitely without further trouble. Cane is an easy crop on the ground, as it draws largely of its product from the air. I know a farm in my neighborhood that has been used for cane for twenty-four years, and good yet.

Mr. Pope. If you put bagassa on your land it gets better each year.

Mr. Passmore. Would timothy sod be suitable for sorghum?

Mr. Leitzman. It is not good for anything, is my experience. Timothy is one of the hardest crops we have on ground. It will kill ground quicker than corn.

Mr. Cotton. The best results of manure is never to apply to growing crop direct, but by sowing clover and produce a crop and then turn it under.

Mr. Fields. We have tried for three years in succession to raise cane on the same ground, but have not been successful. The roots are hard to get away, and it leaves too much seed on the ground to put either in corn or cane, and never have succeeded on poor ground, the second or third crop as well as the first. We have been successful raising wheat on cane ground. It is excellent for wheat or oats, and after a crop of this kind we should then put in cane again, but not continue in cane indefinitely. Flax is said to be hard on ground, but puts the ground in excellent condition for wheat. On the cane, it shades the ground in

July and August, and prevents the sun from shining hard on the ground. It may raise to the surface something that is good for wheat. It may loosen the soil and give life to the earth, making it more adapted to wheat.

Mr. Anderson. Do you feed the seed on the ground?

Mr. Fields. After the head is cut off we take a sulkey-rake and rake them up, and haul to the barn, making feed of them during the winter. You don't want to leave much on the ground, as it will come up in the spring and be in the way of tending.

Mr. Anderson. If the seed is left there and fed to the hogs you will find that it will do good.

Mr. Tilson. Do I understand Mr. Fields to say that the second and third cane crops were not so good as the first?

Mr. Fields. We never got so good a yield.

Mr. Leitzman. Probably the trouble come from the roots. I have had some experience in plowing cane-fields, and I find the roots are the hardest things to plow out, except grubs. It takes a good plow to turn out a large hill, especially of the Hondurous variety, which is often as large as a half-bushel measure. That is the reason, I think, Brother Fields has not had good success. Those that come up are as hard to kill as weeds.

Mr. Passmore. Has any had experience in getting their cane off in time to sow wheat?

Mr. Leitzman. If you have a late variety of cane, it is often in the way of sowing wheat.

Mr. Passmore. Such ground would have to be sowed to oats perhaps.

Mr. Leitzman. Has any one had experience in buying cane from the producer by the ton? I have not yet found a man who runs his works on this plan. If you buy by the ton, what could you pay by the sacherometer?

Mr. Cleland. How much molasses could you get from a ton?

Mr. Fields. There is much difference in cane in this respect. A good two-horse load of well matured Amber will probably make from fifteen to twenty gallons.

Mr. Tilson. How far behind is the Hondurous in ripening, as compared with the Amber?

Mr. Fields. I think about two weeks.

Mr. McQuisten. I pay so much per gallon for what it makes. I have paid twenty-five cents for the last two years, and it has been quite satisfactory.

Mr. Leitzman. Mr. Cleland offers to give each member of this Association a recipe for making molasses.

The Chair. Are you now ready to appoint a committee to pass on the samples on exhibition? If so, I will appoint Messrs. Pope, Fields and Tilson as such committee.

Adjourned.

WEDNESDAY, January 14.

The Association met at 9 o'clock, President Leitzman in the chair.

Mr. Munnz, of Fairburg, Ill., presented the following paper:

SORGHUM MILL AND HYDRAULIC CIDER PRESS.

Mr. President and Gentlemen of the Convention:

Invited by Mr. A. P. Cleveland to attend your meeting and to submit my first year's experience in the manufacture of sorghum syrup, I enthusiastically do so, hoping to get new ideas and learn wherein I can improve my plant. Two years ago I started with a hydraulic cider press. The success I achieved in the manufacture of cider induced me to try the sorghum business last season, without any experience in this line except that which I learned from catalogues furnished by the Hydraulic Press Manufacturing Company of Mount Gilead, Ohio, where the South Allen evaporator is located, and is highly recommended for the manufacture of cider jelly and sorghum. I wrote to these men, and in one voice they all declared the Herring evaporator is unsurpassed in the market. I made a round trip throughout Southern Illinois, Virden, Loxa, and through Indiana, Indianapolis, Franklin and Macy. At Macy the people told me that they had a sorghum maker that was considered first-class. I was pleased to hear that, and went gladly to that man, about three and one-half miles southeast of Macy. Now this praiseworthy sorghum man recommended to me very highly the Smouse self-skimming evaporator. For a long time I could not come to a satisfactory conclusion whether to start by steam or fire evaporation. At last I concluded to work by steam, and on June 11 bought a second-hand steam outfit that had been in use in an old tile factory—the boiler was a 35-horse-power and the engine 25-horse-power—for \$500. After that I put in a Herring 25-horse-power evaporator and a No. 3 Star mill, made by G. A. Field & Co., of St. Louis, for about \$200. I then put in different tanks made by local carpenters. I selected a suitable location, on a small hill near my house, and proceeded to set the machinery up. We had pleasant weather, and nothing interfered with rapid progress in getting started. My first building was 80-24 feet. I worked with two men from July 10, all the time, and had to hustle to get ready in time to make sorghum. In every case unexpected events occur, so here, after the smoke-stack was raised with great trouble, it stood only a day or two and down it came, and it took time to get it up again. To connect the cider press and mill, I bought the Farmer's power-press, made by the Mount Gilead Hyde Press Manufacturing Company, and the double outfit shown by this drawing cost me some more than \$2,000, buildings and all.

Now, what I have done last season is soon told. I hired an engineer, a "molasses cooker," one to feed the crusher, one to carry cane, one to tend the defecator and handle the finished material, and carry away bagasse and haul in coal, and another man to assist by the cider-press.

We made in 28 days about 3,000 gallons of molasses, to the satisfaction of my 80 customers. They say they will plant more cane next season, and a great many new customers have been secured for the coming season, so that I hope to have

double or three times the work as in the past year, and if it should prove a good apple year I will have at least 500 barrels of cider and about 20 barrels of cider-jelly to manufacture. We made 3,100 gallons of syrup in 28 days—that is an average of 111 gallons a day instead of 250.

Here is where experience would have stood me in stead: Not one man understood how to manage the cane crusher properly, therefore I did not get half of the service out of it. Instead of feeding three or four canes deep, only one layer was crushed at a time. The next trouble was not enough steam. The boiler is too small, and should be a 60-horse-power instead of a 35, but it seems to me we waste too much steam, and seems dangerous to use the boiler to its utmost capacity, and to improve my business I am obliged to set up a second boiler, or “fire evaporator.”

In regard to the quality of syrup, please judge of the samples for yourself. The sample is here. I think we did not treat the juice properly before evaporation. We let it come to a boil and removed the scum. Now we let it boil up again the second time and again remove the scum. This process is repeated twice. The juice is then turned into the “supply tank” for evaporation. When drawn from the defecator the juice was a straw color. The Herring evaporator is all right, providing the juice receives proper treatment before evaporation.

To improve my plant in the most economical way, I think I will be obliged to set up a Smouse palace self-skimming evaporator. Would be pleased to have advice upon the subject from the members present. Please let me know what you think concerning it.

DISCUSSION.

The Chair. You have heard the paper read, the gentleman has come here asking for some information. Do not be backward in telling what you know about things requested in the paper.

Mr. Talbert. I would like to have this gentleman confer with some who are not interested in the sale of machinery.

Mr. Leitzman. I do not think there is any danger of him falling in the hands of designing persons, however, that is a good suggestion to confer with those not interested in the sale of machinery. Since going in the factory business at Mooresville, I have been corresponding with business men in different parts of the United States, and I will say for the sorghum brethren, there is a disposition to treat all communications we had with courtesy, not the first man refused to answer me, but are willing to part information asked for and sometimes go farther and tell me things I had not thought of. I have been corresponding with persons in Louisiana. We have grown up with the idea that the planters of the South were not approachable, but it is not the case, they invite us to go and see them, and they will take us in their families and treat us with courtesy and show us over their plantations, and I think the gentlemen here would gain much by correspondence.

Mr. Pope. We had better act upon this Legislature petition in regard to the protection of the sorghum business.

The Legislative Committee again submitted a report for consideration.

DISCUSSION.

Mr. Pope. When you sell a pound of butter, if it lacks an ounce they won't take it, and it is the same way with a barrel of molasses.

Mr. Tilson. We have no hope of passing the Legislature as it is, but we want it to contain the substance. They may correct it with some other law.

Mr. Anderson. We should leave this with the committee to confer with the Representatives, and act as they may deem best. I think they understand their business.

Mr. Tilson. I do not want to go before the Legislature without this body behind me.

Mr. Leitzman. Glucose is a legitimate article of commerce, but that a mixture of glucose with sorghum syrup or cane syrup, and making a combination syrup, in that case the proper way would be to withdraw the confiscation clause, and make it obligatory to brand spurious articles.

Mr. Tilson. We have that.

Mr. Leitzman. If you have that, it is wrong to brand anything that is confiscated, for he has a right to eat what he wants. This confiscation clause should be stricken out, for every kind of syrup should be properly labeled. If it is improperly labeled, then confiscate; but if it contains impurities and they are correctly labeled, we have no right to confiscate it. If a man knows what he is buying, it is all right.

Secretary *pro tem.* Dewey offered the following:

Resolved, That we, the Indiana Cane Growers' Association, endorse whatever its committee does in regard to selling mixed sorghum for unmixed goods.

Pending its adoption, the following remarks were made:

Mr. Dewey. It may be giving a little too much string to the committee. I believe it is the easiest to come at an understanding to say we want an endorsement from the Association, and will probably submit the bill that they block out.

Mr. Johnson. We should simply say the cane growers endorse this substance of the bill submitted by the committee. I, therefore, offer the following amendment:

Resolved, That the Indiana Cane Growers' Association endorse, in substance, the bill on adulteration of molasses and syrup, presented to us by the committee appointed to present the same to the Legislature.

Adopted.

REPORT OF COMMITTEE ON PROGRAMME, 1892.

1. President's Address. Discussion.
2. Appointment of Committees.
3. Best Mode of Planting, by L. H. Mansfield, Morristown.
4. Best Method of Cultivation, by William Fields, Philadelphia.

Evening Session.

5. Chemicals—Manner of Use, by W. L. Anderson, Ladoga, Ind.
6. Defecation Without Chemicals, by Edwin Berry, Westfield, Ind.
7. My First Season's Experience, by E. L. Barnard, Eden, Ind.

Morning Session—Second Day.

8. Reports of Committees.
9. Election of Officers.
10. Question Box and unfinished business.

C. B. NICHOLS,
D. H. TALBOTT,
JOHN RICHMOND,
Committee.

Mr. D. B. Johnson read the following paper :

ORGANIZATION OF THE LEITZMAN SORGHUM, CANNING AND
MANUFACTURING COMPANY.

BY W. F. LEITZMAN.

This company was organized in the spring of 1890. It is a stock company incorporated under the laws of the State of Indiana; has a capital stock of \$15,000. The factory will be built near the town of Mooresville, Indiana. Its stockholders are about equally divided between the farmers and the business men of the place. Its object is to make and put on the market a strictly first-class article of pure sorghum syrup. This is the principal object, and during the other parts of the year will engage in canning vegetables, making preserves, cider, jellies, etc.

The evaporating will all be done with steam and in pans made especially for this plant. The juice will be pumped to the receiving tanks, which will be placed high enough to enable it to flow from the tank to the defecater, thence to the other receptacles, evaporators, coolers, storage tank, and finally into the barrel. The cane yard will be arranged to save as much handling as possible, and delivered to mill on trucks, etc. No definite plan yet for the disposition of the begassa.

The manner of operating this plant will be the same as that adopted by others, to contract with the farmers to grow the cane and deliver to the works properly stripped, topped, and in good condition, the value to be determined by the psychrometer test. Also to do any and all custom work that may come to it. The custom work will be done on the exchange plan. The custom cane will be weighed, tested, and syrup delivered to him at once.

It will have a capacity of 1,000 gallons of syrup per day, and when completed, which will be for next season's run, will be second to none in the United States,

It will probably be asked why this plant was located at Mooresville, and in answer to that query, will say, that your Honorable President and the superintendent of this factory have been engaged in the manufacture of sorghum syrup for the past eighteen years about ten miles west of this place. And as his reputation for making a first-class article of syrup began to spread over the country, the farmers from about Mooresville would haul their cane from ten to fourteen miles to "Leitzman's" factory. And through this means it was found that the cane that came from this vicinity made a superior quality of syrup, hence, this location was selected.

The old creek bottoms and the beech poplar, walnut, and sugar-tree uplands that surround this place are exceedingly well adapted to the growing of cane.

It is needless for me to say very much of the gentleman from whom this company is named, as you all know him, and of him. In looking over the Indiana Reports, I find that he has several times carried from this Cane Growers' Association the capital prize for the best sample of sorghum syrup, and through some channel I am informed that, when the commission appointed to select a sample of sorghum syrup to send to the World's Fair, across the ocean, to show to the world what the United States could produce, this commission, after making a thorough examination, selected the sample of syrup manufactured and placed on exhibition by the superintendent of this company.

DISCUSSION.

Mr. Leitzman. He probably has not told entirely all. He did not state there were other samples besides mine selected and taken in charge by Prof. Wiley and sent to the Paris Exposition.

Mr. Anderson. When a man gets a premium he should not try again for some years, and let some one else try. I make this suggestion, that we make it a term of five or six years before he can enter for a prize again. I will make a motion to that effect, that if anyone having received the premium on his syrup shall not compete again for a term of five years.

Mr. Pope. I think three years is long enough. I move to amend by making it three years.

Mr. Johnson. I think three years is long enough.

Mr. Anderson. I accept the amendment, and commence from this year.

Mr. Pope. I hope this will not cause any to fail to bring samples.

Mr. Tompkins. Hold on, Mr. President; this question is debatable. We are trying to hold these meetings and improve the quality of syrup, and what is our standard? The best quality possible. If you set aside the best man you give the premium to second and third quality. It will retard the progress.

Mr. Fields. Let him come up and show.

Mr. Talbert. If he gets the prize one year, he will get it for years afterwards. What reason is there of us coming here and paying our money and giving the prize to a certain person all the time?

Mr. Talbert. You get tired after a while; there is nothing fair about it.

Mr. Talbert. I rise to a point of order.

Mr. Nicholson. I like the idea that the man who has the best molasses getting the prize; as long as he can hold it let him have the prize. I do not consider it any honor to set him aside. It is not a few dollars and cents, but it is the man who makes the best molasses.

Mr. Pope. Those having the first and second prizes should furnish a written communication how it was made, so we might profit by it.

Mr. Johnson. My understanding is we want to reach the line; if we have no object to reach, we don't know whether we get there or not. I would rather have the honor than the money. Get a prize on workmanship, and let every man reach deep and patronize him. We want to get energy, and study our business until we get to that point.

Mr. Fields. We are all reaching and want to be on top. If we are ahead and take premiums, it is the height of our ambition to keep ahead. If a person don't know how to make good molasses let him learn; it is one thing to know and another thing to do. If a man can keep on top, let him have it, if it is twenty-five years.

Mr. Anderson. There are some good things on both sides of this question. If this motion was modified it would be what we want. Let us have a first and second grade, and let these men compete with themselves. The best man would have to compete with himself the first year, but after that we would have a class of first-class sorghum makers competing. If desired, I will amend my motion to that effect. We should mark the best sorghum men in the State, and have a competition, and put an impetus to those not doing anything in that direction. We want them to get up to the top of the hill, so they can get over the hill with a little more effort. We should probably have two classes, one the best and one not, the former class competing with themselves. I will make this as an amendment.

Mr. Dewey. I second the amendment, as made by Mr. Anderson.

Mr. Tompkins. I oppose the amendment. It would make two classes; one would be first-class sorghum makers, and the other second-class. I don't think that would be right.

Mr. Pope. I move the whole question be laid on the table.

Carried.

The following officers were elected for the year 1891:

President—W. F. Leitzman, Clayton.

Vice-President—D. H. Talbert, Spiceland.

Secretary—Elwood Burnard, Elwood.

Treasurer—A. P. Cleland, Macy.

DISCUSSION.

Mr. Nicholson. There is much difference in cane juice. Some will part with the scum quite readily, while others will hold it. By mixing the juice you get a better purification. I would like for some of the smaller factories to try an experiment with the Baum sachrometer.

Mr. Cleland. Mr. Nicholson's method of mixing juice corresponds with mine. I can get better defecation by mixing.

Mr. Tilson. Can you make as good an article with mixed juice as with good?

Mr. Fields. No; you can make a better molasses out of good juice than you can out of an inferior article. I have been in the business for twenty-five years, and we find there is a difference.

Mr. Dewey. We do not understand that the best molasses can be made out of poor cane; but by mixing the good and bad, it will make better molasses than the bad alone.

Mr. Tilson. It is much like feeding a cow with bran and sawdust, but the more bran the better.

Mr. Nicholson. What will you do with bad cane? The idea is to make a grade when a man wants good molasses and no bad; in that way you build up a custom, and all are satisfied. People want their own molasses.

Mr. Barnard. What inducement would there be to take good care of his cane and take it to the factory, knowing it would be mixed with those who take no care in preparing their cane?

Mr. Anderson. I have had that question asked many times. It is like the wheat taken to the mill; if you take bad wheat to the mill, you get bad flour.

Mr. Nicholson. If a man has good cane, he gets good molasses.

Mr. Cleland. How are you going to keep from mixing it when there are two or three jobs together?

Mr. Fields. We can't help mixing, but the idea of a mixed juice being as good as good cane juice is erroneous. The good must be superior to the bad, and the more bad we mix with the good, the worse the molasses will be.

Mr. Cleland. If I get cane I consider bad, I don't work it.

Messrs. Tilson, Fields and Richmond were appointed a committee to negotiate with the *Indiana Farmer* for a column to be set apart for the sorghum industry.

A. P. Cleland, Macy, Ind. I will now give you a few remarks on the use of chemicals in the manufacture of sorghum molasses. Well, now I am aware of the fact that a good many sorghum-makers are opposed to using chemicals, all I have to say to them, is to go home and tell their wives and daughters, to make bread without chemicals and compel them to do so and see if there is not an increase in divorce suits. Now, gentlemen, here is a comparison, make your biscuits without soda or sour milk or baking powder, which are all harmless chemicals and how do you like them. Now there is as much difference in sorghum made without chemicals, as there is with the bread we eat. Now the leading chemicals in sorghum-making among the following are bisulphate of lime, sulphurous dioside, salsoda, alumine and lime, you can use one, two or all of them in certain portions for the benefit of purifying sorghum juices, which rightly used will make a more palatable article of syrup, which has been pronounced more healthy for the benefit of the human family by our most prominent doctors and chemists. Place a barrel of this sorghum in a family of puny, sickly children and see how soon they will be bright and hearty.

President Leitzman. We have had an interesting and I trust a profitable meeting. I hope you will all take an interest in this organization that will keep it going and contribute to the *Indiana Farmer*. We should not leave this work to two or three, but let each one consider it his duty to contribute to its support. I hardly

feel that it is right for me to work in this capacity another year, as I have as much on my hands now as I can look after properly, still I do not belong to myself, but to the Association and I will try to do the best I can, and as I said before consider yourselves a committee of one to work to the interest of the Indiana Cane Growers' Association and get your friends and patrons not directly interested in the manufacture of sorghum molasses, to attend our meetings. We might just as well have two hundred as well as fifty in attendance.

Adjourned *sine die*.

MEMBERS INDIANA CANE GROWERS' ASSOCIATION.

A. P. Cleland . . . Macy, Ind.	G. Simons Sheridan, Ind.
C. B. Nicholson . . Clayton, Ind.	W. F. Leitzman . . Mooresville, Ind.
Wm. Fields Philadelphia, Ind.	L. H. Mansfield . . Morristown, Ind.
T. McQuiston . . . Morning Star, Ohio.	N. B. Dewey . . . Cicero, Ind.
Alvin Hill Galveston, Ind.	W. L. Anderson . . Ladoga, Ind.
W. C. Hutchinson . Acton, Ind.	Jacob H. Kaley . . Marmont, Ind.
John Richmond . . Daleville, Ind.	Arlando Hill . . . Desolation, Ind.
Ira H. Tompkins . Tiffin, Ohio.	George Vanlue . . Rochester, Ind.
Edwin S. Pope . . Indianapolis, Ind.	David Lyon Upland, Ind.
John E. Merritt . . Avon, Ind.	S. W. Tilson Franklin, Ind.
W. H. Pearce . . . Straughn, Ind.	D. B. Johnson . . . Mooresville, Ind.
J. E. Mills Dublin, Ind.	Elmer Leitzman . . Clayton, Ind.
Charles Leitzman . Clayton, Ind.	Elwood Barnard . . Eden, Ind.
D. H. Talbott . . Spiceland, Ind.	

INDIANA STATE FISH AND GAME CONVENTION.

STATE BOARD LECTURE ROOM, STATE HOUSE,
INDIANAPOLIS, THURSDAY, DECEMBER 18, 1890, 1:30 P. M. }

The Convention was called to order by State Fish Commissioner W. T. Dennis, who said :

As you are well aware, it is quite popular when a man goes fishing and gets a small catch to have a good reason for it—the wind being in the wrong direction or the bait was not right. Now what excuse we are to make for the small attendance here to-day I do not know. I presume the excuse is that there is a big excursion to-day. It requires a little bit of patriotism over and above the common average to get members out, therefore I am not surprised that we have a small attendance. The matters of most importance can be attended to. At the last meeting the reports of the committees on the different topics for discussion were left over, and we will call for them in their order :

1. The best method of forming local societies. The committee consists of R. C. Smith, Crawfordsville, Ind.; Cicero Sims, Frankfort, Ind.; W. H. Sands, Rushville.

2. The best method of securing the influence of the agricultural societies. The committee consists of Elisha Howland, Marion County, Ind.; James G. Kingsbury, Indianapolis, Ind.; W. T. Dennis, Richmond, Ind.

3. The best method of securing the influence of the press. The committee consists of John A. Stevens, Rushville, Ind.; A. W. Hatch, Indianapolis; W. P. Fishback, Indianapolis.

4. How best to create a sentiment in favor of fish and game protection. The committee consists of B. Border, Winamac, Ind.; Eli Lilly, Indianapolis; W. R. Pleak, Greensburg, Ind.

5. What are the best methods of securing the enforcement of the game and fish laws, and what additional legislation is necessary for the protection of fish and game? The committee consists of J. P. Applegate, New Albany, Ind.; H. E. Smith, Indianapolis; Ignatius Brown, Indianapolis.

6. What should be the close season for black bass? The committee consists of B. K. Elliott, Indianapolis; Asher Wert, Crawfordsville, Ind.; Willis Vajen, Indianapolis.

7. What are the best fish with which to stock our streams? The committee consists of Frank Buker, Rome City, Ind.; W. H. Dye, Philadelphia, Ind.; A. H. Nordyke, Indianapolis.

8. Legislative committee : J. P. Applegate, W. P. Fishback, E. B. Sellers.

The committee on the first topic, "The Best Method of Forming Local Societies," failing to respond, the chairman called upon Mr. Howland, chairman of committee on "The Best Method of Securing the Influence of the Agricultural Societies."

Elisha Howland. I have not a full report prepared, but I took down some notes as to what I thought would be of an advantage in securing the assistance of the agricultural societies in the enforcement of the fish and game laws.

First. I would say amend the laws so that members of the agricultural societies (when I say members of agricultural societies I mean everybody, because these men are all farmers), may fish at any time, except in the close season, on their own premises.

Second. Make it a misdemeanor for any one to be found using a fishing net or pole during the close season. I would fine a man just as quick for carrying a net or pole as I would a man for carrying a gun. Then, I think it ought to be made a felony to go upon a man's farm and take fish from his private pond. I think there should be some discrimination between the running waters of the State and those of private ponds. I believe it would be a very good idea for persons to set apart a few acres of their farm for a natural growth of trees and shrubs to invite various kinds of game, and then let it be their own as much as is there own hen-roosts. If it were made a felony to enter or approach those places set apart for birds, I believe it would increase the supply of game on our farms.

The committee on the third topic, "The Best Method of Securing the Influence of the Press, not reporting, the committee on the fourth topic, "How Best to Create a Sentiment in Favor of Fish and Game Protection," reported as follows:

B. Border. I only speak of fishing. I do not go hunting. At the last meeting I had some vague ideas of what would be necessary to create a sentiment in favor of fish and game protection. I think we made a partial report, but I do not know that I want to recall anything that I said at that time. I think there is another method, probably better than all of those that we named at that time. I have had some experience since then. Your committee has had one more year's experience. We have been fishing and we love the sport that much more. It seems to me that the proper thing to do is to "catch" the public and take it out a-fishing. Let the fish be caught, cooked and eaten on the bank of the creek, and every one will be a convert thereafter. Take just one person at a time. It is slow, and may take some time to accomplish the desired end, but it is sure.

Mr. Pleak. I am not much of a hunter, but I like fish. I find that the sentiment is improving greatly for better fish and game laws. This has been accomplished through the kindness of our State and United States Fish Commissioners. When we received the car load of fish last summer, we went to these men who have been in the habit of disobeying the laws, and asked them if they would not like to help us distribute these fish. That very act alone enlisted these men in favor of better fish protection. They are now interested. That carload shipped to St. Paul was distributed for ten or fifteen miles up and down Flat Rock. We must get men interested in re-stocking our streams; also, interest them in the idea of having a close season. There is a growing sentiment along that line. I think the time has come for us, as an organization, to ask of the Legislature that they give us a close

season. Let it not cover too much ground and let the people have a trial of it. If we find it necessary to extend the close season we can do so. But the idea of getting people interested in re-stocking the streams, I think, is the best way to reach people upon this topic. They are very sore in this State about privileges of fishing on their own premises. Make them parties to guard and protect the fish, and we can thereby build up a very decided interest in fish protection.

The report of the committee on the next topic, "What are the best Methods of Securing the Enforcement of the Game and Fish Laws, and what Additional Legislation is Necessary for the Protection of Fish and Game?" was made by

Mr. Applegate. I would like, if it would suit the convenience of the chairman and members interested, to have a little discussion before the report is made. I would like to have an expression from the gentlemen on some points which I could make orally, and which would aid the committee in making a report that would be somewhat more acceptable. The first thing in our report that was blocked out was in relation to enlarging the powers and duties of the Commissioner, increasing the salary of the Commissioner, and the appropriation for carrying on the work of the commission.

The Chairman. The chair will not object to an increase of the salary.

The committee agreed that the salary of the Commissioner be not less than one thousand dollars a year, and that we would ask the Legislature for at least four thousand dollars a year in addition to the Commissioner's salary, thus making the work effective. We have a very large territory and a great many very large streams. There has been a disposition among the people to pay little attention to the State law. It is going to require some work to enforce the laws and carry the work along. I would like to have some discussion on this subject.

The Chairman. I feel like saying, from my knowledge and experience which has been picked up within the last two years, that I feel there is an absolute necessity for a larger appropriation. I am satisfied that if I had had a thousand dollars to have used about the first of September I could have captured almost every seine in the State. Had I had money at that time I could have followed them up. It is almost impossible to follow up these laws and make them effective. Farmers do not like to appear before those who fish after night. They do not care to inform on such men and run the risk of getting their barns burned. The only method that I know of by which the violations can be stopped, and the only means by which we have been able to stop them so far, is by means of detectives. When a man is picked up and fined, it carries consternation up and down the rivers. It requires money to get detectives to work up such cases and expose themselves to the dangers which such lawless men openly avow that they will mete out to any one who opposes them. Money is an absolute necessity to make a success of the duties of the Fish Commissioner. As to the amount of salary I have nothing to say. A man who puts in his time faithfully earns that much. There can be no question about asking the Legislature for a greater appropriation.

Eli Lilly. I would like to say a few words. We have an example before us of what a fishing man with a small amount of money can do. The great object in this movement is to increase the food supply of the State. I know of no other channels of supply that are so wantonly encroached upon by violators of the law.

The annual supply of food from the streams will very rapidly increase and make itself felt if there is that protection given to the fish that is given those things of importance to us in the different matters of life. We have an instance of it in some waters in which I am more or less interested. I refer to Turkey Lake, now called Wawasee. But a few years ago it was almost impossible for the angler to go there and get a respectable string of fish. Three years ago we undertook by moral suasion to encourage the people to preserve the fish. We had managed to get a little hold on the people there. Two years ago the matter was taken up very earnestly there by our Fish Commissioner. Although his salary is very small, as well as the appropriations, he undertook to protect the fish there by the local encouragement offered. Of course the Government has been called upon to stock that body of water. It is the most important body of water in the State, being about six miles long, with the communicating waters about nine miles. It is the home of the bass (there were formerly countless numbers of the black bass), yellow perch, sunfish and all the very best fishes that we have. The Government has lately put in a stock of California trout. We have seen no good from that planting, except when the new law was passed doing away with fishing at all times of the year. Last year the Government put in a car load of black pike, a fish that grows in the great lakes to twenty-five pounds. The people were asked to help deliver these fish to all parts of the lake—the Jones and Smiths all turned out. This fall we saw a great many of these fish longer than my hand. There the bass is the kind of fish that we want to protect. I think there were some eleven convictions last spring. This fall we found that people could go along the lake and bring in from ten to fifteen black bass. The fish are growing and thriving very rapidly considering the short time they have been protected. This brings us around to the proposition: "That if a little money will secure such results, what will a larger sum do?"

I suppose these gentlemen have made some calculations upon which to base those figures. It may be that that is a sufficient amount to ask for at the present time. I think that four thousand dollars expended would do a great amount of good. We ought not to ask for less than five thousand dollars for the use of this commission. One thousand dollars, as a salary for the Commissioner, is a very small amount for a work of this kind. It is a work in which activity and service amount to a great deal. Since our Commissioner has had charge of this matter we have seen the only good work that has been done in the State of Indiana, so far as my knowledge goes.

There should be some provision by which the Commissioner could appoint deputies, by which police powers would be given to these deputies. I do not mean that this Association should be an organization of anglers and fancy crack shots, but should be an organization of the people, and protect their best interests—those that go to make up some of our comforts and tend to render us happy.

The Chairman. In relation to the matter of violations of the laws at Turkey Lake, the man who has done the most of the work, where eleven successful arrests have been made, says: "There are but few violators of the law; we have been after them; they are on the lookout. We are figuring upon a scheme how to trap them. Only three or four are troubling us now, and we have them spotted." This shows what a little law has done where forty thousand pounds of fish have been

annually sent to Chicago. Here are the results. This man is the one who helped to make the first arrest as well as the last one.

Mr. Lilly. I had a letter, a day or two ago, from one of the best citizens of Kosciusko County, saying that there are scarcely any violations of the law there. He has a good chance for observation.

Mr. Border. What has been said about Turkey Lake might be said about one hundred other lakes in Northern Indiana, if we had money to prosecute violators of the law. Not only the lakes, but the rivers there, need protection. We need money to do it. It would increase the food supply, and give recreation to those that are indoors too much. The tax payers of the State can afford to pay a reasonable amount. We might be able to reach several more lakes with a little larger amount of funds. Cedar Lake is in just the same condition that Turkey Lake was a few years ago. Perhaps there are more fish taken from the Kankakee River than any other, and I can't understand why it is not necessary to protect the Kankakee as well as other rivers. There are hundreds of men who make their living along that river by shipping fish to Chicago. At the outlet of Cedar Lake is a dam about eight feet high. The fish have been caught out of the lake and others can not get in it. I think our Fish Commissioner has been very judicious in doing what he has. He should receive sufficient compensation to enable him to devote his entire time. Detectives should be employed, as well as legal talent, that offenders may be prosecuted.

Mr. Kenner. I think there are no fishing grounds in the United States that excel Indiana—especially the northern part. We need to protect the lakes more than the rivers. It is convenient to go to Cedar Lake from my county—sixty miles away. It is the greatest fishing ground we have struck anywhere. If we could have some legislation, even without money, as they have in New York, we could run down the fish pirate and catch him. If we could have an officer around that carried with him the authority of the law, our Association could pay him for his services. There is a class of people about these lakes who care nothing for the protection of fish—they live from hand to mouth, and when these fish-pirates come along they will go seining with them, carry lanterns, or do anything else. We could soon stop it if we only had some official who carries with him the necessary authority. The law now is that the supervisors shall look after the violators of the fish law, but they pay little attention to the matter. I am in favor of an appropriation for four thousand dollars, or twice four thousand, if we can get it.

The Chairman. The proposition of Mr. Applegate is to authorize the Fish Commissioner to appoint deputies in such localities as he thinks proper, and that they be paid in receiving one-half of the funds collected.

Mr. Lilly. The Commissioner himself has not the police powers that ought to be conferred upon those deputies. I think the proposition a good one.

The Chairman. All in favor of the proposition say "aye." Carried unanimously.

Mr. Applegate. In regard to a fish hatchery, we came to the conclusion that it was best to go a little slow, on that subject at least. The government has established a good many hatcheries, and so far it seems to be an experiment. We thought it best not to ask too much of the Legislature, and concluded to waive this

proposition for the present. It is more of a Northern Indiana proposition than a southern one.

The Chairman. I feel like saying this much as the result of my own observation: I honestly do not consider that Indiana needs a hatchery to-day. My reasons are these: The first talk about the hatchery was in connection with raising white fish in Lake Michigan at Michigan City. The other States have been very industrious in putting white fish in the lakes; and so far as any other fish in Indiana is concerned, the only fish to us, and which we look upon as the great mogul, is the black bass, and it is impracticable to undertake to produce this fish by means of a hatchery.

On motion, the proposition to ask for the establishment of a hatchery was lost.

Mr. Applegate. The next proposition is: "The sale of dynamite should be regulated by law."

The Chairman. It seems to me that this ought to be the sense of the meeting. Those in favor say aye. Carried.

Mr. Applegate. The next proposition of the report of your committee is: "There should be a close season for all fish from to, and the possession of fish in close season should be *prima facie* evidence of illegal taking."

Upon that subject I would like to read a letter from a very good farmer and a very enthusiastic fisherman. The letter reads:

PRATHER, IND., March 15, 1890.

Hon. Jas. P. Applegate, New Albany, Ind.:

DEAR SIR—I did not attend the fish and game convention at Indianapolis, but I assure you that I have read the report of the proceedings with the greatest interest, and write you to encourage you as much as I can.

There were some few things said that I do not exactly like. While I approve a close season, I think from April 1 to June 15 entirely too long. In order to be effective, a law of closing should, as far as possible, be popular with the farmer. The proposed closing, as stated, would practically deprive the farmer and his boys from fishing, as he could not catch them before April 1, and June 15 brings us to harvest. Such a law would raise the cry, "Those town fellows have got the law so they will get all the fish." Besides, you no doubt know the bass do their spawning almost entirely in May. I would suggest that the closing be the month of May only, as a starting, and then, if necessary, a succeeding Legislature could extend it with less opposition.

I was glad to notice a disposition of the convention to extend the closing to all fishes. To undertake to exempt black bass only would not be worth a rush. By all means have the bill so drafted that there will be no doubtful point, and make the carrying of fishing tackle about the creeks *prima facie* evidence of guilt.

There is one suggestion I want to make. I have been thinking much about the gar fish. I need not tell you how every true fisherman dreads to see the flap of the tail of the gar, and how well he knows he had just as well move somewhere else. Now can not we devise some plan to get these ruinous pests and destroy

them? I can show you miles of the finest water in our small rivers and creeks where they seem to have complete possession, and every fish coming up from the lower parts of the rivers has to pass the gauntlet of these ferocious fish, for fish they are, and our laws do not exempt them. I believe I can catch them by wholesale, but would, of course, as the law now is, lay myself liable, and, as you see, I have every faculty on the watch constantly to catch the dynamite "hogs" and netters, but if they could return the compliment they would show no mercy. But my plan is simply to get a net in the stream at a narrow place near where the gars are (they are easily seen), have several boat crews come down the stream pounding the water, and drive them in. I verily believe some such plan carried to a success would do more to re-stock our streams with fish than anything of which I know. They could be taken with dynamite, but that would endanger some other fish, as large cat and pike do not seem to leave like other fish as soon as the gar appears. Any scheme to get rid of the gar should be backed by law and enforced by some officer so as not to start poachers. At the risk of being tedious will say further, that after studying this matter for years, if I were asked what is the greatest obstacle to restocking our streams, I would answer emphatically, gar, and that I would expect better results from ridding our streams of them than from a good and faithfully executed closing season.

Yours truly,

GEORGE W. HAZZARD.

Mr. Border. One word in regard to the letter. A close season that covers the spawning season in Southern Indiana would cover only the beginning of the spawning season in northern part of the State. We want to make it sectional, or else, long enough to cover all of the State.

Mr. Pleak. I am most heartily in favor of a close season. Simply having a law against having fishing tackle along a stream or make it criminal to have fish in one's possession will not be effectual. I think the time should be from the 15th of April till the 15th of June. The people in my part of the State are ripe for a close season. The streams have been depopulated by every means known to the art of killing fish. The sentiment among the people is for some protection during the spawning season. Let us ask the next Legislature to give us from April 15 to June 15.

Mr. Allen thought that the close season should begin early in the spring; that it was better for the bass to have laid her eggs before being caught. Said that the gar pike was an enemy of the food fishes, and should not be protected by the law. If seining with not less than two-inch mesh were permitted the days of the gar would be numbered.

Mr. Kenner, in discussing the spawning season, spoke of the immense quantity of fish that were taken from the lakes through holes in the ice, and thought that protection should be given them on this point.

Mr. Applegate asked for discussion on the legality of a law that would give a close season for one part of the State at one time, and another part at different time.

Mr. Border thought that a law giving a close season to any river, with all its tributaries, for a certain time in the year, would be legal, but that any other division of the territory would not stand the constitutional test.

Mr. Lilly thought that a happy medium should be struck between the northern and southern parts of the State—that protection should be asked for from the 15th of April till the 1st of June, or from the time at which fish begin to spawn in the southern part of the State until the spawning season begins in the northern part. The spawning season varies more in the lakes than in the streams flowing southward, because the lakes are frozen over and a lower temperature of the water necessarily follows. We want to ask for something that will not create local opposition. At Turkey Lake we have obtained a good deal of local strength in the protection of fish simply because we deprive ourselves of catching them when we might do so under the law. There should be a close season for the black bass and bluegill.

Mr. Applegate. How would you determine whether a person who might be fishing had caught a black bass or other fish.

Mr. Lilly. There is a fine point there which we need to carefully consider.

Mr. Butler said that the benefits of legislation would be largely lost if the close season did not begin near the middle of winter, long before the spawning season begins.

Mr. Applegate. It is evident that there is a wide difference as to when the close season should be—especially among the lake fishermen and those who fish in the streams.

The Chairman. By consent further discussion will be deferred until seven o'clock this evening.

Mr. Applegate. Your committee further ask that it should be unlawful to take game fish under seven inches in length at any time or in any manner.

The gentlemen discussing this subject were Messrs. Border, Pleak, Applegate, Pitts, Lilly and the Chairman. By consent further discussion was waived till the evening session.

Mr. Applegate. The next topic of your committee's report reads: "Some manner should be provided for the destruction of gar fish, turtles, muskrats and other natural enemies of the fish, under the supervision of the Commissioner or his deputies." Carried.

The seventh topic is: "The pollution of streams should be prohibited by law." Carried.

Your committee further report that: "No fishing should be permitted within a reasonable distance of fish ladders." Carried.

In this connection I wish to say that I think that the waters stocked by the State government and private parties should have special protection. Most of the States have laws to this effect, and fish are not allowed to be taken in any manner for two years thereafter. If the government is still going to aid us in re-stocking our streams, the fish must be protected. Within three weeks time after we had put some handsome bass in the streams of Southern Indiana, more than a hundred were caught by parties from Louisville.

Mr. Lilly spoke briefly of the financial status of the Association, after which the Chairman called for the report of the Treasurer.

Mr. Blair. I have the following report to make as Secretary and Treasurer:

REPORT OF TREASURER—EXHIBIT "A."

INDIANAPOLIS, IND., December 18, 1890.

To the Indiana State Fish and Game Association :

Your Secretary and Treasurer submits the following report of money received and paid out :

CASH RECEIVED.

1889.		
Dec. 19.	Col. W. T. Dennis	\$3 00
" "	Col. Ely Lilly	3 00
" "	O. P. Jenkins.	3 00
" "	M. D. Butler	3 00
" "	Dr. P. G. C. Hunt.	3 00
" "	B. Border	3 00
" "	A. B. Prather	3 00
" "	William R. Pleak	3 00
" "	F. M. Ruker	3 00
" "	O. F. Dewey.	3 00
" "	Dr. C. N. Metcalf.	3 00
" "	Willis Vajen	3 00
" "	H. S. Tucker	3 00
1890.		
Jan. 3.	W. P. Fishback	\$3 00
" "	Dr. S. T. Yancey	3 00
" "	O. S. Chamberlain	3 00
Apr. 25.	E. B. Sellers.	3 00
Total		\$51 00

CREDITS.

1890.		
Jan. 9.	To receipt books	\$1 75
Feb. 15.	To U. S. transportation, 112 packages	28 06
Feb. 12.	Frank Smith, printing 91 postals.	75
Mar. 20.	To Indianapolis Sentinel	4 00
Mar. 27.	To postage and express charges	8 05
June 6.	To postage and express charges	5 87
Dec. 17.	To postage and wrapping paper	5 98
Total		\$54 46

RECAPITULATION.

Total expenses paid.	\$54 46
Bill unpaid, Frank Smith.	2 95
	<hr/>
	\$57 41
Cash paid out	\$47 73
	<hr/>
Amount to be paid.	9 68
Balance cash on hands	3 27
	<hr/>
Deficit in treasury	\$6 41

Respectfully submitted.

JESSE H. BLAIR,
Secretary and Treasurer.

Examined and allowed December 18, 1890.

W. T. DENNIS,
Chairman Executive Committee.

The Chairman. The report of the Treasurer will be referred to the Executive Committee for auditing and approval.

The following letter from the U. S. Fish Commissioner was read by the chairman:

WASHINGTON, D. C., Dec. 9, 1890.

W. T. Dennis, Esq., Richmond, Ind:

DEAR MR. DENNIS—It is a fresh impulse to enthusiastic work when I perceive such indications of activity in fish-culture work as are manifested in your circular of December 6. It would be a great gratification to me to be able to attend the meeting, but I regret that it is out of my power to do so. I would be glad to have from you a report of the meeting, and copies of such papers as may be read and published, as all such subjects cover matters of very great interest to us.

Very truly yours,

MARSHALL McDONALD,
Commissioner.

Mr. Applegate. I have prepared a little resolution which I am anxious to have adopted:

Resolved, That the President appoint one or more members whose duty it shall be to attend the farmer's institutes, or as many as practicable, and discuss the fish and game questions of the State, to the end that a healthy public sentiment be created in favor of the laws on these subjects.

Carried.

On motion, the convention adjourned until 7:30 P. M.

EVENING SESSION.

The convention was called to order by the chairman, who said: "Gentlemen, the order of the day is the consideration of the close season."

Mr. Lilly. In order to get the matter before the convention, I move, that it is the sense of this Association that the close season for all fish be from the 15th of April to the 15th of June, and that it shall be unlawful to fish through the ice at any time or by any means.

Carried.

The Chairman. The next subject is to have fish that are less than a certain length thrown back into the water.

Mr. Border. I move that it be the sense of this meeting that it be unlawful to catch and keep any bass, wall-eyed pike, perch or pickerel under eight inches in length.

Carried.

Mr. Applegate, chairman of the Committee on Legislation, submitted the following revised report, which was adopted:

MR. PRESIDENT—Your Committee on Legislation would respectfully report:

1. That the office of Commissioner of Fisheries should be raised to a higher rank, its duties and powers enlarged, and the emoluments increased. The salary of the Commissioner should not be less than \$1,000 per annum, and the amount of \$4,000 per annum should be appropriated for the necessary expense of the office. The Commissioner should have the power to make arrests, and to appoint deputies in each county, the fees of the deputies to be collected from violators of the law.

2. There should be a close season for all fish from April 15 to June 15, and the possession of fish during that time should be *prima facie* evidence of illegal taking, and it shall be unlawful to fish through the ice at any time.

3. It should be unlawful to take game fish under eight inches in length at any time.

4. Provision should be made for the destruction of gar fish.

5. Persons making arrests should be authorized to destroy nets, seines, traps, etc.

6. Persons should be prohibited from entering upon the enclosed lands of another, with fishing tackle in their possession, without the written consent of the owner or tenant.

7. The pollution of streams should be prohibited by law.

8. The sale of dynamite should be regulated by law.

9. No fishing should be permitted within a reasonable distance of fish-ladders.

This report might close here, but your committee would respectfully represent:

1. That it is deemed advisable not to ask for too large an appropriation, for fear of defeating the object sought to be obtained.

2. To make laws effective they must be sustained by public opinion. If our laws are too drastic, they can not be enforced. If we require the people to pay, or do too much, they will pay or do nothing. If we make the close season too long, it will be disregarded altogether.

3. The hatching of fish may well be left, for the present, to the general Government. By necessary amendments to our laws, and a more rigid enforcement of the same; by providing fish ladders wherever needed; preventing seining and other illegal destruction of fish; keeping the streams unpolluted; destroying the natural enemies of the fish; a close season during spawning time; not catching out the babies; preserving the timber along our streams, and, generally, trying to save the natural supply, and then with the aid of the Government in re-stocking, we will soon have our lakes and streams well stocked with fish.

J. P. APPLEGATE,
Chairman.

The Chairman. This is the time for electing new officers of the Association, the term of the present officers having expired.

Mr. Applegate. I move that the present officers be continued for another year. Carried.

Mr. Lilly. I do not think this meeting ought to adjourn without some expression of the appreciation that we feel on account of the able manner in which our Fish Commissioner has conducted his work during the past year, and I move that this Association tender a vote of thanks to Hon. William T. Dennis, State Fish Commissioner, for the able and efficient manner in which he has performed the duties of his office during the past two years. We do earnestly desire that he be continued in the work, and cordially recommend him to the Governor for re-appointment. Carried.

On motion of Mr. Applegate the Chair appointed the following special Committee on Legislation: Albert T. Beck, A. W. Hatch and Ben. L. Smith.

Mr. Howland. I move that a vote of thanks be tendered Mr. Jesse Blair for his services as Secretary and Treasurer. Carried.

On motion the Convention adjourned.

WILLIAM T. DENNIS,
President.

JESSE H. BLAIR,
Secretary.

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